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Selecting & Installing Coilover Shocks
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Upgrades for Early Chevelle Steering
Barrett-Jackson CUP 2023
We See Some Familiar Faces In The Winners Circle

ON THE COVER:

Current owner Bob Owens is the "caretaker" for a very famous '32 Ford roadster. The Ian Cusey roadster once appeared on the cover of a *Hot Rod* magazine special, was rod tested in *Rod & Custom*, and was featured on the Astronauts album jacket cover (titled *Competition Coupe*, and who knows why they used roadsters) along with Tom McMullen's famed '32 Ford highboy roadster. Photography by Wes Allison

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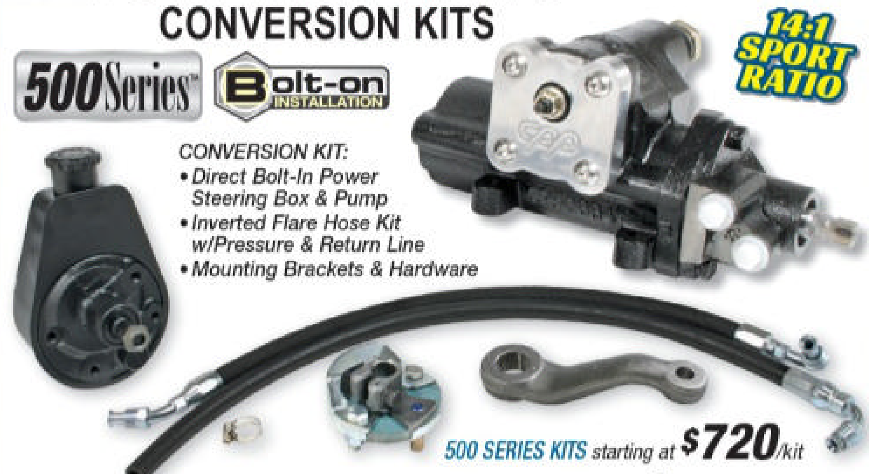
14:1 SPORT RATIO

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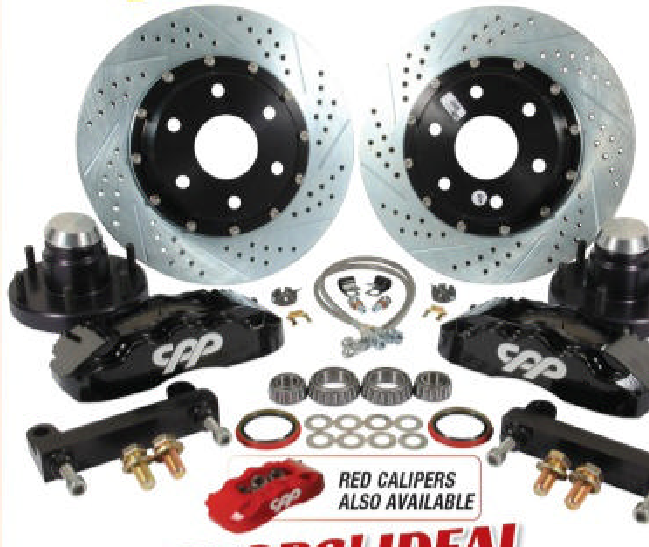
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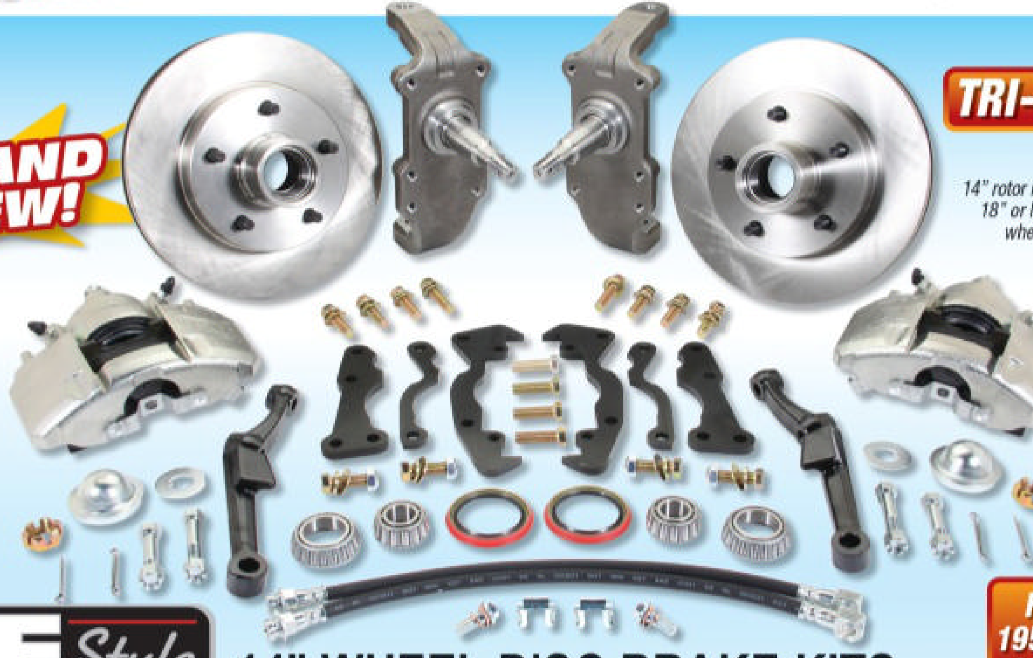
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MOST POPULAR APPLICATIONS

TRI-FIVE FRONT *shown*

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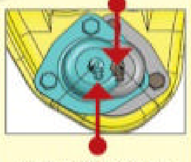
UPPER 5° CASTER FOR 1955-57 TRI-FIVE ONLY *shown*

ORIGINAL LOCATION OF UPPER BALL JOINT



NEW LOCATION OF UPPER BALL JOINT

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TG13-55 ...... 1955-57 Wagon Tailgate Complete
TG13-551 .... 1955-57 Nomad Tailgate Assembly

1955-57 CHEVY FENDERS

FE13-55L ...1955 - Dr FE13-56L ...1956 - Dr
FE13-55R...1955 - Ps FE13-56R...1956 - Ps
FE13-57L ..... 1957 150 w/o Holes - Dr
FE13-57R..... 1957 150 w/o Holes - Ps
FE13-571L ... 1957 210 & BelAir w/Holes - Dr
FE13-571R... 1957 210 & BelAir w/Holes - Ps

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Hot Rodding at a Crossroad

BY **BRIAN BRENNAN** PHOTOGRAPHY BY **THE AUTHOR**

It started more than a decade ago with the economy taking a hit many of us hadn't experienced in our lifetime. Then came the long "climb" back and we were most assuredly on the right track. Then three years ago we were smacked upside the head once again; dare I say none of us has experienced—a pandemic, inflation of staggering proportions, and a myriad of other social and political miscues.

Yet as I look around it appears to me that our industry is doing well ... ask SEMA, look to Detroit, or better yet check in with your local rod shop. All are telling stories of skyrocketing business but dampened with stories of labor shortages and escalating prices. Yet the overall assumption is that for all the "issues" we are experiencing a positive outlook.

So, what's on the horizon with regard to new builds? Well, there will be plenty of what we know and enjoy but the nature of hot rodding is to explore and expand; there's something electrifying happening right now. Over the past five years or more, electric-powered hot rods began showing up. My first experience with seeing one was about 25 years ago at the dry lakes here in SoCal. Driving around the pits, I believe it was an electric Model A roadster. You couldn't hear it come up behind you, which proved to be the point. It was a novel idea but one rodders weren't taking seriously ... at that time.

If you don't think EVs are here to stay, think again. If you don't agree with my statement look at Detroit (then worldwide). Still don't believe? Have you attended the SEMA show within the past two years? Are you going to attend this year? There will be a section dedicated to the electrification of today's hot rod that will stagger the imagination. Still not convinced? Well, you don't have to be. But it's coming first to our daily life and then it will be showing up in our future projects. Well, maybe the future has arrived.

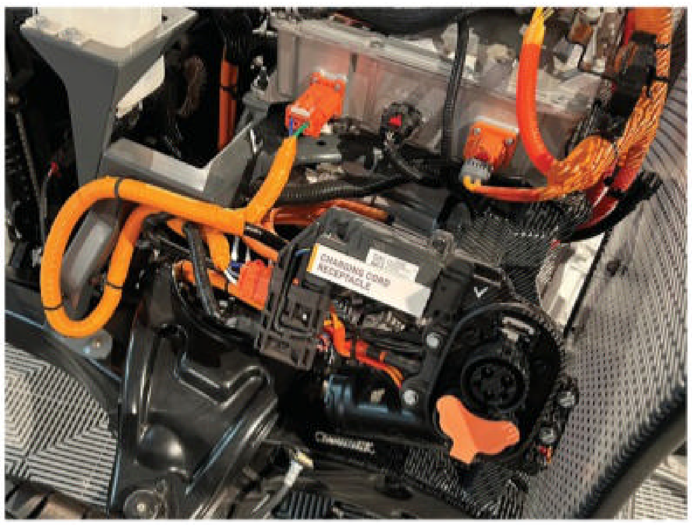
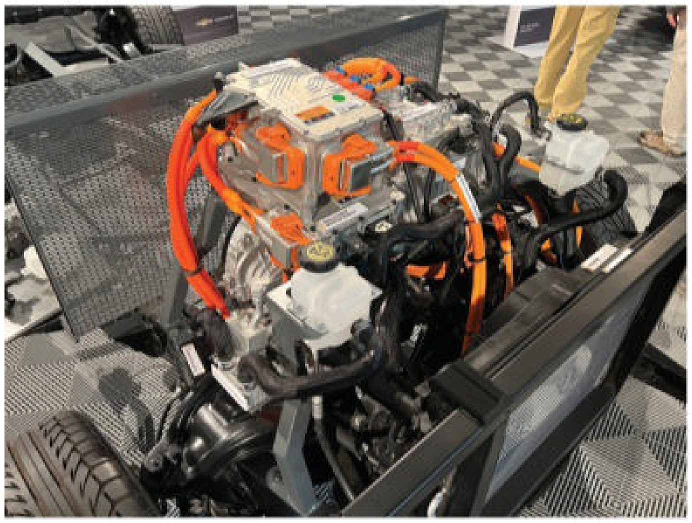
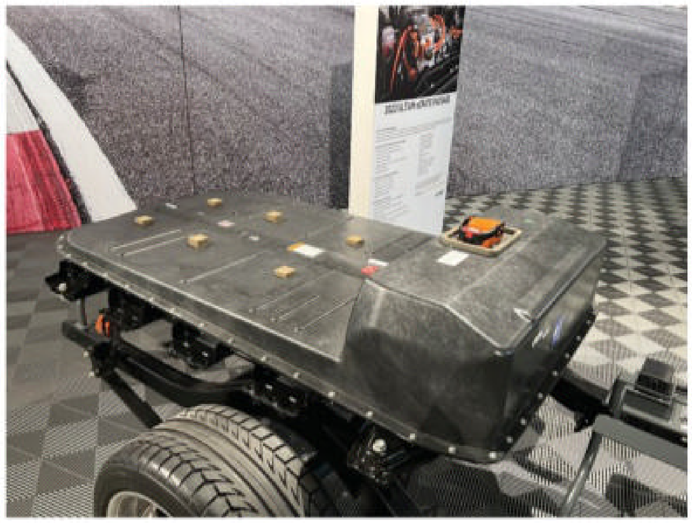
Still, for the diehard hot rodder there will be decades to come where the roar of a big-block or the scream of a high-winding small-block will be plentiful. You and I may resist what's happening, but it is still happening. That's a fact. You and I don't have to like it or even participate but plenty will and therein lies the future.

In my home state of California, Senate Bill 301, co-sponsored by SEMA, is geared to offer up to $2,000 toward converting your gasoline (or diesel) fueled car (classic or hot rod) to a Zero-Emission Aftermarket Conversion Project (ZACP). I have a working knowledge of what it takes to make such a conversion and I am here to tell you that the $2,000 won't even begin to cover much of the conversion. The $2,000 most likely will barely cover the technical training, which is required before you can purchase Chevrolet Performance's latest offering. The program is called the "Chevrolet Performance Authorized ESVM" (electric specialty vehicle modifier) and you need to pass the technical training before continuing. Well, you or your installer.

Chevrolet Performance is pioneering the eCrate Connect & Cruise concept. For those who have shown a past interest you may remember the eCOPO and the e10 that later morphed into the K5 Blazer-E. The first-ever Chevrolet Performance Ultium eCrate package is said to be available by mid 2023. So, as you read this editorial, it will be just around the proverbial corner. It should also be mentioned that the package will be available in limited quantities and only sold through Chevrolet Performance–approved installers.

It will take a stout car or truck to effectively house one of these packages as the battery pack itself weighs in at 947 pounds. Compare an all-iron blown Chrysler Hemi that probably comes in at 800-plus pounds to one of these packages that will most likely top 1,000 pounds. The eCrate is best suited for an oversized hot rod like a '50s or '60s station wagon or a wide range of classic pickups.

So, while most of us will stick with our favorite V-8, remember there is change out there for the brave of heart and wallet who want to give it a go. **MR**

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1956 Chevy "Diablo Blanco"
Owned by John Gagetta Built by Alloway's Hot Rod Shop
Photos Courtesy of John Jackson

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The Ultimate Hot Rod Supermarket … The Auction

BY **BRIAN BRENNAN** PHOTOGRAPHY BY **BARRETT-JACKSON AUCTIONS**

All of us wonder just how much our hot rod is worth. Experience has taught us that our hot rod is worth what someone is willing to pay for it. Ideally multiple buyers who possess both the desire and the wallet to own your current ride is optimal. Fellow hot rodder and omnipresent Ron Ceridono tells me that I have failed to learn this process. He tells me my cunning ability to "buy high and sell low" is counterproductive … at least for me.

Recently I had the opportunity to spend several days at the Barrett-Jackson Auction held in Scottsdale, Arizona. This is the biggie for them and always lives up to the billing. Granted, there are some 1,600 vehicles up for sale and they do sell, but it is the accompanying show that is mind boggling. While I was looking for early hot rod buys, of which there were few, I did notice that there were plenty of Chevys, Fords, and Chryslers that were bringing in big dollars. I can easily say that the high-performance car aftermarket is alive and well. Corvettes are still king among the Bowtie crowd and the "correct" Camaro is highly thought of, while the Ford GT-series of cars are very strong and the Mustang remains popular, and Chrysler late-'60s/early-'70s-era muscle cars are still very strong, especially the Superbirds.

To make my point here is a listing of the Top 5 selling Chevys, Fords, and Chryslers:

TOP-SELLING CHEVROLETS:

Lot #1353: '69 Camaro ZL1	**$770,000**
Lot #1367: '67 Corvette custom convertible	**$770,000**
Lot #1418: '68 Camaro RS/SS Baldwin Motion	**$583,000**
Lot #1375: '53 Kindig CF1 Barrett-Jackson edition roadster	**$572,000**
Lot #1451.1: '62 Corvette 327/300 convertible	**$572,000**

TOP-SELLING FORDS:

Lot #1390: '20 Ford GT carbon series	**$1,320,000**
Lot #1419: '19 Ford GT Lightweight Carbon series	**$1,320,000**
Lot #1396: '66 Shelby Group II Mustang (Ken Miles)	**$770,000**
Lot #1399: '69 Mustang Boss 429	**$605,000**
Lot #1397: John Mayers '06 Ford GT Heritage Edition	**$594,000**

TOP-SELLING CHRYSLERS:

Lot #1400: '70 Plymouth Hemi Superbird	**$605,000**
Lot #1330: '70 Plymouth Superbird	**$550,000**
Lot #1371: '70 Plymouth Superbird	**$401,500**
Lot #1464.1: '69 Dodge Hemi Charger 500	**$341,000**
Lot #1311: '71 Plymouth 'Cuda	**$275,000**

Now, investigate the coffee can you have "rat holed" in the deepest darkest recess of your garage and count your savings. Maybe you have what it takes to bring home one of these iconic hot rods. **MR**

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442 CUTLASS
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BUICK
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FORD TRUCK
1953 - 1956

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BY **BRIAN BRENNAN**

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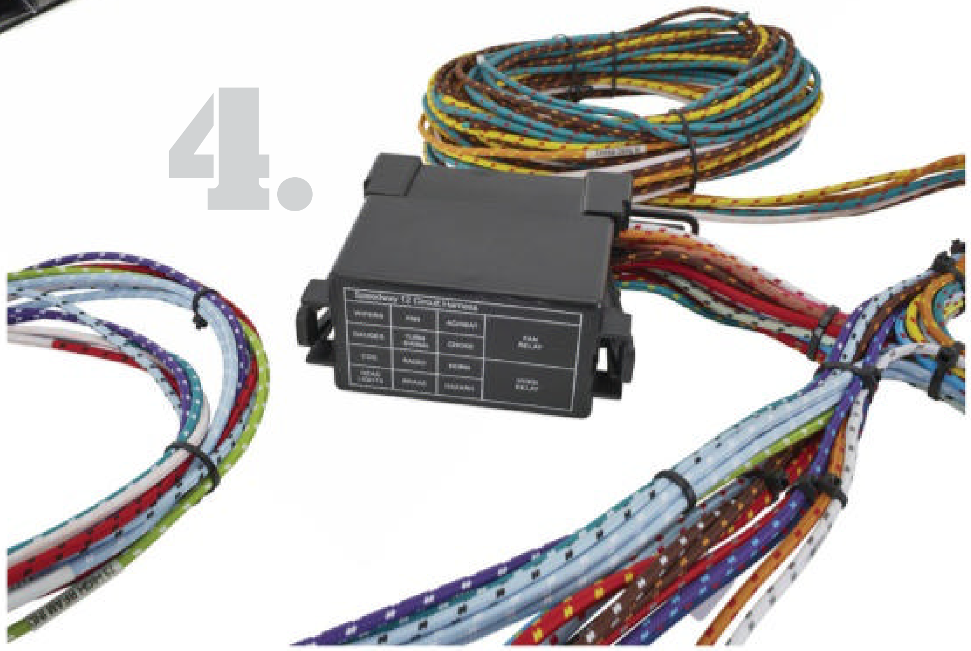

1. ’64-67 GTO RECEIVES A FACIAL

Classic Instruments announces its new ’64-67 GTO direct-fit package is an all-electric cluster featuring a speedometer and tachometer with a set of two dual gauges reading fuel/oil and temp/volts. It has green LED turn signal indicator(s) and a blue high beam indicator in the dash housing. Mounting hardware and a wiring harness is included to install with the original bezel, diffuser, and lens and setup is a breeze with push-button speedometer calibration and built-in ECM signal filter switch. All other necessary sending units are included with a Classic Instruments GM sending unit kit (PN SNGMNF) no-fuel sending unit. Fuel gauge is calibrated to 0-90 ohm. Save space with Classic Instruments’ Zeus Speedometer Technology built-in, meaning the cluster requires no external control boxes and works directly with ECM or VSS signals. This package is available in seven different design series plus an OE style.

For more info, check out Classic Instruments by calling (800) 575-0461 or visit classicinstruments.com.

2. HORSEPOWER IN YOUR GAS TANK

FiTech Go-Fuel In-Tank Retrofit Kit (PN 50014) with 600hp module is designed for almost any fuel tank depending on depth. FiTech’s universal pump module can be used on tanks with a depth of 6 to 15 inches. The billet top assembly was designed with the supply and return ports in a parallel position to help route the fuel lines easily and evenly. The vent port is on the other side to make it easier to route the line near the fill tube.

The two fuel ports are threaded to fit -6 AN O-ring boss fittings for a secure and leak-free connection. A 255-LPH pump is included along with terminals, filters, and hardware. It also comes with an OEM-style sock filter. The FiTech in-tank module top has a low-profile design that allows for maximum clearance from the floorpan of the vehicle.

For more info, check out FiTech by calling (951) 340-2624 or visit fitechefi.com.

3. MOPAR C-PILLAR REPLACEMENT

Auto Metal Direct (AMD) is excited to announce the release of their new C-Pillar Vertical Posts (PN 610-1468-3L and PN 610-1468-3R) for ’68-70 Dodge Charger, Super Bee, and Coronet and Plymouth GTX, Road Runner, Satellite, and Belvedere models.

This high-quality replacement part maintains the structural integrity and the original appearance of your Mopar. The C-Pillar Vertical Post is located between the wheelhouse and rear window frame and plays a crucial role in supporting the roof and rear window. This is a common area for rust and is a needed component on most every restoration.

The AMD C-Pillar Vertical Post is made with durable OE-style automotive grade steel and is designed to fit your car perfectly. Mopar Official Licensed Restoration Part.

For more info, check out Auto Metal Direct by calling (877) 575-3586 or visit autometaldirect.com.

4. VINTAGE LOOKS MODERN WIRING PERFORMANCE

Speedway Motors 12-circuit universal mini-fuse wiring harness is a great option for wiring hot rods of all makes and years. Speedway Motors now offers their popular 12-circuit harness and has added the vintage braided cloth covering to each wire circuit. They have also adjusted the layout to make it easier to install.

Some points of note are the vintage braided cloth covering over modern GXL insulated automotive wiring gives the desired looks and provides for modern safety. It’s ideal for restoration projects, custom vehicles, or budget-minded DIY builders. It is a plug-and-play with ’68-96 GM tilt steering columns (can be spliced into others). It uses the modern and popular blade-style APM/ATM mini fuses in place of outdated glass fuses. The taillight leads are 12 feet in length.

For more info, check out Speedway Motors by calling (800) 979-0122 or visit speedwaymotors.com.

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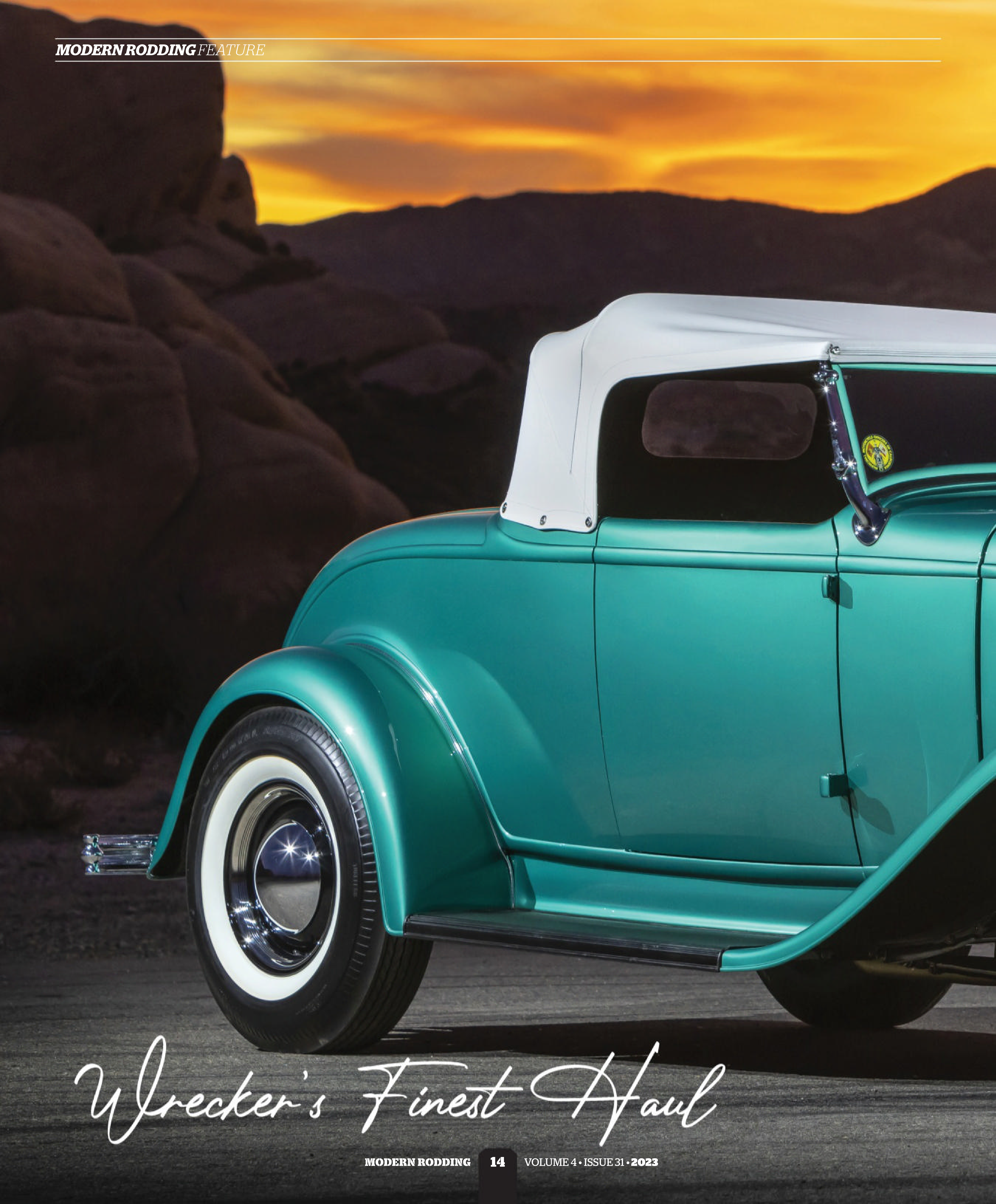
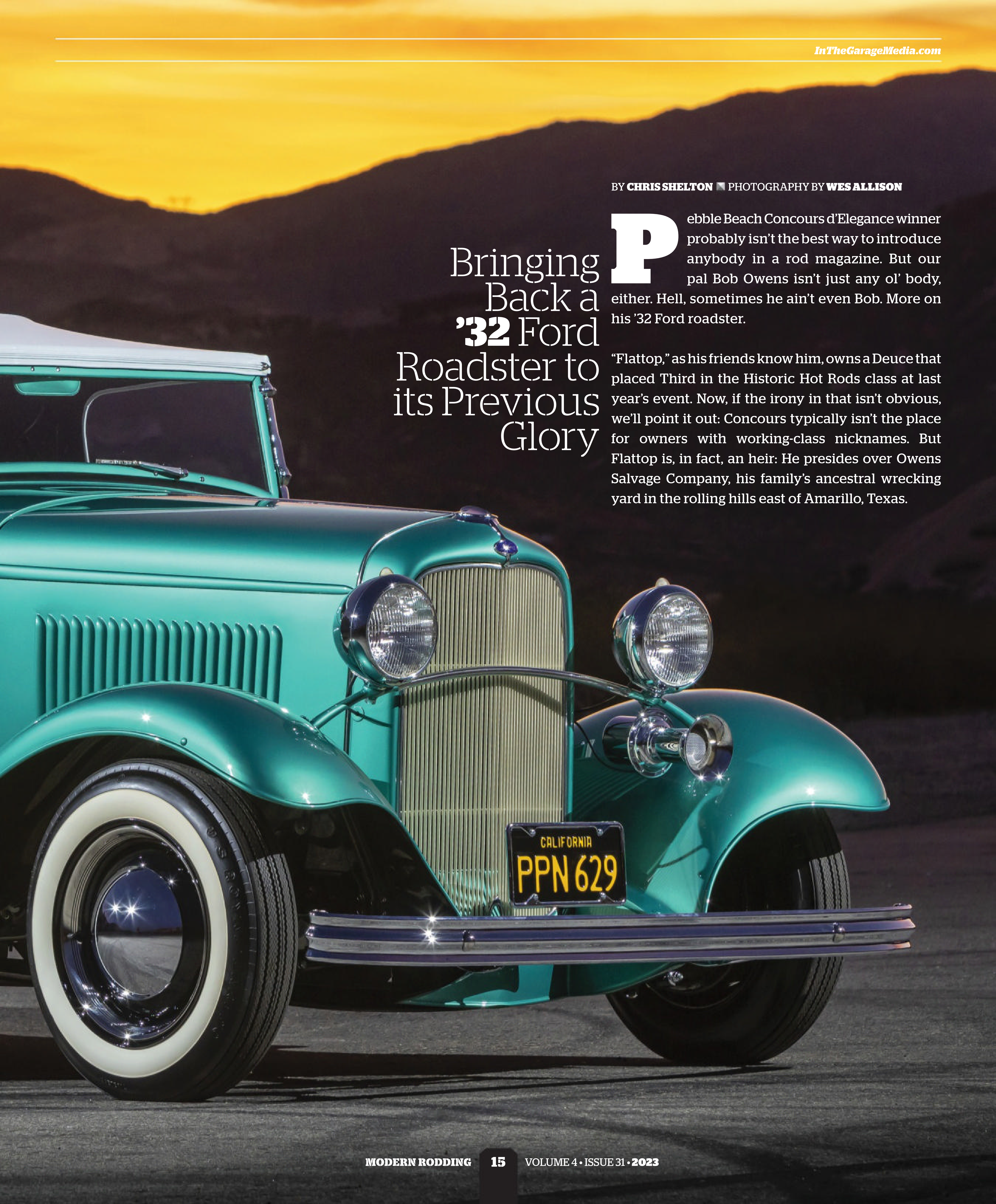


Wrecker's Finest Haul



BY **CHRIS SHELTON** ◼ PHOTOGRAPHY BY **WES ALLISON**

Bringing Back a **’32** Ford Roadster to its Previous Glory

Pebble Beach Concours d’Elegance winner probably isn’t the best way to introduce anybody in a rod magazine. But our pal Bob Owens isn’t just any ol’ body, either. Hell, sometimes he ain’t even Bob. More on his ’32 Ford roadster.

“Flattop,” as his friends know him, owns a Deuce that placed Third in the Historic Hot Rods class at last year’s event. Now, if the irony in that isn’t obvious, we’ll point it out: Concours typically isn’t the place for owners with working-class nicknames. But Flattop is, in fact, an heir: He presides over Owens Salvage Company, his family’s ancestral wrecking yard in the rolling hills east of Amarillo, Texas.

If you're historically minded, you likely recognize the car from its spate of publicity it got in the early '60s. *Rod & Custom* tested Ian Cusey's Jade Green Deuce in the July '62 issue. Then it appeared on the cover of *Hot Rod* magazine's 1963 special *Speed Tuning & Trouble Shooting*.

It was a copy of that special that someone gave to Flattop's friend, Randy Pimpler. A brief Internet search dug up Ian Cusey's phone number. A slightly longer phone call blew Pimpler's mind: Cusey not only owned the car half a century later, but he'd sell it. So, Pimpler bought it.

The elements were remarkably good to the car; it went into dry storage soon after its debut. But what wasn't so great were the times.

Cusey had a longstanding friendship with publisher Tom McMullen. Among other things, they were in L.A. Roadsters together (Cusey was VP when his car got ink). It explains how his roadster appeared with McMullen's on the cover of the Astronauts' 1963 release *Competition Coupe* (but doesn't explain why the producers chose roadsters for the album art).

They hatched a plan to update the roadster as a stripped-down highboy with modern amenities, like a credit-card ignition (a McMullen favorite). Starting in the Mar. '82 *Street Rodder*, they shaved the body, replaced its floors, and replaced the Ford suspension with California Street Rods four-links front and rear. They replaced the 283 and '47 gearbox with a 350/auto combo. Then, in prime Tom McMullen fashion, McMullen hurt himself in a crash. The car sat until Pimpler bought it.

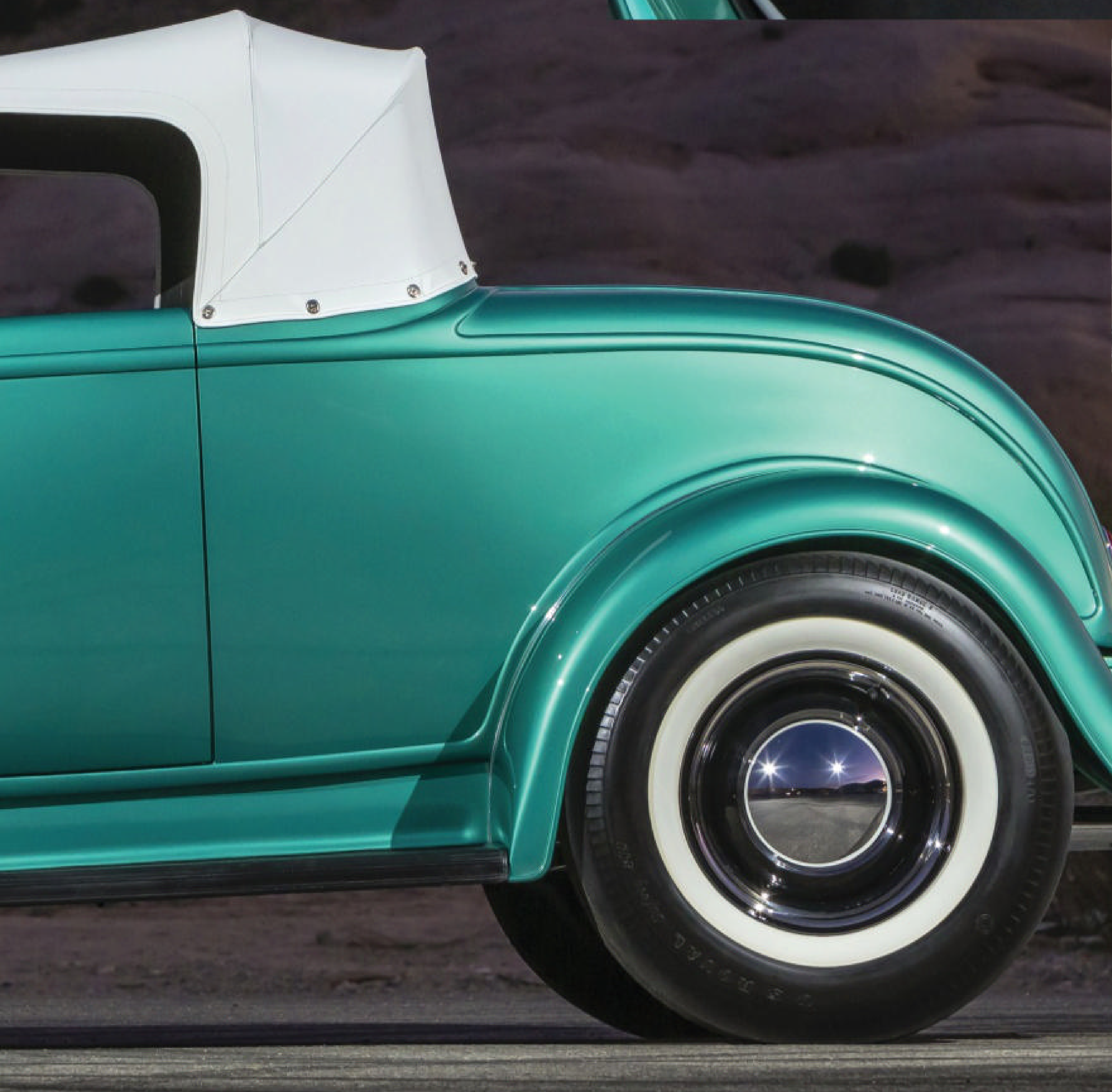
Flattop secretly longed for the car in his pal's garage. "I never tried to buy it, but he knew I liked it," he says. "Well one night, outta nowhere, he calls me. 'You wanna buy the car?'"

He sold his '51 Mercury. "That was a primo car, an awesome Merc, and we traded it for a rusty Ford in boxes," he says, chortling. He spent the following replacing what was lost to its partial transformation.

Then he did something uncharacteristic: He asked for help. "I've always worked on my own cars," he boasts. "This is the first time that I let anybody else fix a car for me."

Like Flattop, Jamie Johnson ain't just any ol' body. He runs Jamie Johnson's Hot Rod Haven, an industrious little shop in Albuquerque, New Mexico.

"You know how a car will go to a shop and just sit there?" Flattop asks. "And you'll come back year after year and here sits the same four or five cars? What I like about Jamie, it's him and his dad and one other guy and they work on one car at a time."



"About every eight months we finish a car for somebody, and I'd say for the last five or six years they've all been '32 Fords," Johnson says. They bag and tag every part and then send them out for blasting. And that's when everybody realized just how much work they were in for. "When it was turning it into an '80s-style car, they brazed up the holes for things like the side curtain and fenders," he says. Johnson removed all the brass and grafted about 50 patches of new skin to the body. "It was a bit of a mess.

"In *Street Rodder* back then, there's a picture of a new floor going in," he continues. "Well, they did it with the body upside down. The floor was an inch out of square. The decklid wouldn't even fit in the hole." He removed the floor, squared up the body again, and replaced the floor. "Of course, it was all brazed in. But we were lucky enough that Bob had almost everything in boxes," he says. "The car had everything that was specific to it. You know, all the things that made it different." Even the 283 that Frank Brown rebuilt for Flattop was ready to go.

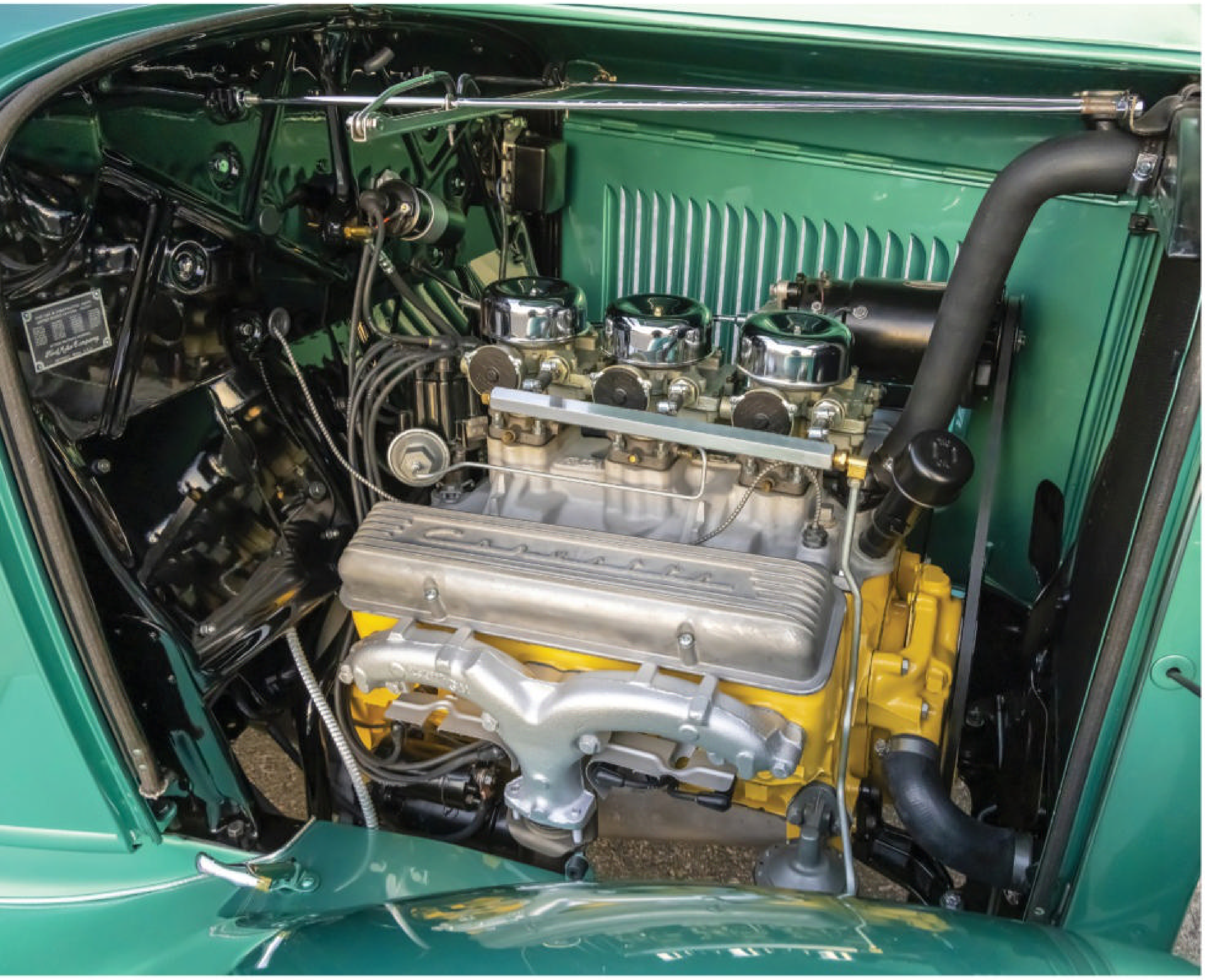
Jamie, his dad, Jim, and family friend Al Edwards painstakingly restored, reassembled, and realigned the entire car working from scans of negatives from the *R&C* article. The only thing they didn't do was spray primer and paint (that was Sean Sena and the color is '57 Plymouth Jade Green Poly), plate parts (Beo-Mag Plating, Santa Ana, California), or do the trim work (Baskin Auto Upholstery in Fresno, California, and Ron Mangus in Yucaipa, California).

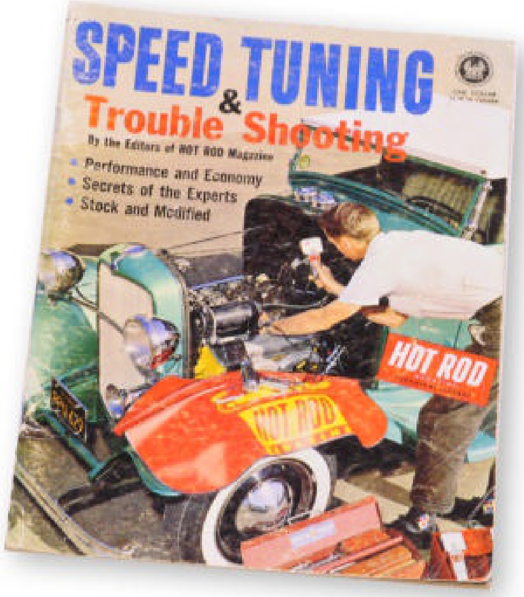
And Flattop sweated every detail. "There are nine reproduction parts on that whole car," he says, practically crowing. For the record, it's trim rings, brake drums, and a gas cap. "And when I go to the roadster show (2023), Early Ford in San Dimas, California, has a cap for me."

The car debuted at the 2022 Grand National Roadster Show. "The car was everywhere on the Internet during the roaster show," Flattop says. "I guess that's where Ken Gross saw it."

Gross is a whole bunch of incredible things, but his status as a class judge at Pebble Beach Concours D'Elegance is what matters most here. He nominated the car for judging in the 90th anniversary celebration of the Deuce roadster that the organizers hosted.

"You know, I just knew (Pebble) was the most prestigious car show and I didn't know how it worked or anything like that," Flattop admits. "I figured they don't really like us (hot-rod people). But everybody was very nice to me," he continues. "I didn't have any trouble at all. And I enjoyed it so much. You know, I grew up going to hot rod shows. So, to see Marmon's and Talbot-Lagos? You know, stuff that I don't get to see?





The roadster also appeared on the 1963 *Hot Rod* magazine specialty title: *Speed Tuning & Trouble Shooting.*

It was back in the July '62 issue of *Rod & Custom* that the Cusey Deuce roadster was the subject of a rod test. All the testing was done at the long gone but not forgotten Lions Drag Strip. At the time he was vice president of the L.A. Roadsters Car Club.

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"And I'm a trinket guy. I love gauges and knobs. How many '40 Fords have you walked by in your life? Hundreds. How many Duesenbergs do you get to look at up close? I enjoyed so much looking at the knickknacks.

"I was so surprised when all this happened, five couples of my friends all paid and went to Pebble Beach just, you know, to support me." They all shared a home near Laguna Seca. "When we'd go back to our room, I could hear the cars running."

The storybook ending came when officials told Bob to drive his car up to the awards apron. "When they picked the car, I just kind of stood there," Johnson says. "This is unbelievable.

"We showed up with no political pull," he continues. "The owner being Bob and the builder being me, it was just crazy."

Flattop calls it all a windfall of good fortune. "If they would've not touched that car, if I could have got it the way it was parked in the early '70s, it would be like Gray's (Baskerville) car. It could have been saved as-is.

"But them doing what they did lowered the price," he says. "Which allowed [Pimpler] to get it, which allowed me to get it."

He calls it luck, but I like to think of Flattop's good fortune as a reward. His family spent almost three generations—his whole life thus far—in the pursuit of keeping our old junk on the road. And it took someone like the heir to a wrecking yard to painstakingly track down every part, suss out every detail, and agonize over every discrepancy (seriously, call Owens Salvage Company if you have good drums or N.O.S. trim rings). Whatever it is, I bet you agree that he deserves it.

Pebble Beach winner may not be the best way to introduce somebody in a rod magazine. But honestly, I can't think of a better way to describe Flattop Bob Owens. **MR**

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BY **CHRIS SHELTON**
PHOTOGRAPHY BY **MARCUS "SHAKY" SULLIVAN** & **"PPG PAUL" STOLL**

Recently, we introduced you to Marcus "Shaky" Sullivan and his legacy project, a Square Bird custom that painter Bill Carter started. For those of you who just joined us, Carter set out to build a tribute to his mentor, Larry Watson. He had some friends drop and shave a survivor car before he painted it. Only the car remained unfinished upon his death in 2019. So, Sullivan took it upon himself to sort out his hero's unfinished business. He bought the car and set out to replicate the paint design that Carter's longtime pal Steve Stanford rendered.

That's a big ask, even for a pro like Sullivan. But he has the next best thing to an interstellar portal: "PPG Paul" Stoll. He's a retired PPG rep who teaches custom painting classes using information gleaned from people like his mentor, Bill Carter. Stoll insists that he wouldn't have had the opportunity to enter the paint industry if not make a career of it if not for Carter, and that it's his responsibility to keep the tradition alive.

Last month they explained how they laid and sprayed the purple panels. This month they do the same for the white areas among the panels and on the top. As they did before, they reveal the ingredients that Carter specified to create this shade of Billy Brew. They also explain how they got the graphic effects.

Once upon a time these techniques and formulations were highly guarded secrets. And to a degree, they still are—some enthusiasts still pass off production colors as custom blends, which is pretty lame, too.

But thanks to the generosity and commitment of pioneers like Carter, their designs and legacies live on. The ultimate way to honor those techniques is to pass them on to others. Because if we can see further, it's from standing on the shoulders of giants like Wild Bill Carter. **MR**

Part 2: "Wild Bill" Carter Left a Paint Legacy ... and an Unfinished Larry Watson tribute. Here's how Marcus "Shaky" Sullivan and "PPG Paul" Stoll Honored the Deal.

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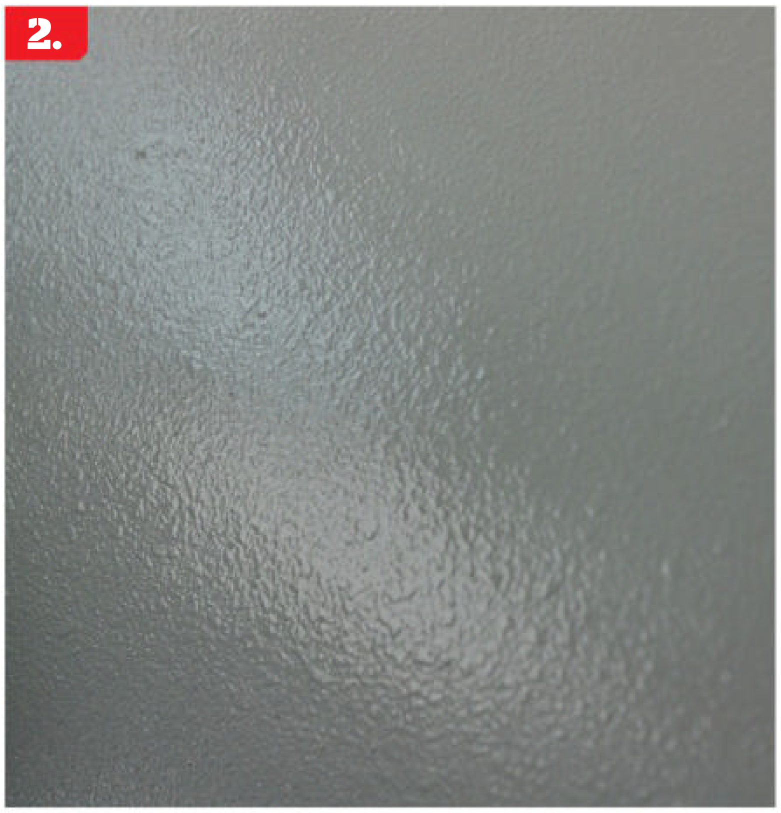

1. Marcus "Shakey" Sullivan started by spraying a wet coat of ECS81 White Sealer through a 1.4 fluid tip. He then mixed a batch without reducer and, using a 1.8 tip with 5-10 psi at the gun, shot a so-called dry coat.

2. The dry coat produces a rough texture like what you'd expect from an interior building wall. This is the cornerstone of the famed pebble base. He covered this with T400 white.

3. He then mixed T452 Fine White Pearl 1:1 with VWM5556 waterborne-midcoat clear, 10 percent T492, 5 percent T493, and 20 percent T494. He shot two coats.

4. Sullivan laid out some designs over the pebbled-and-pearled base using the FBS tapes. He covered this with a pearl intercoat that he made from 25 parts T4000 Crystal pearl, 75 parts VWM5556 clear, 10 percent T492, 5 percent T493, and 25 percent T494. He protected that coat with a lock-down intercoat of WVM5556.

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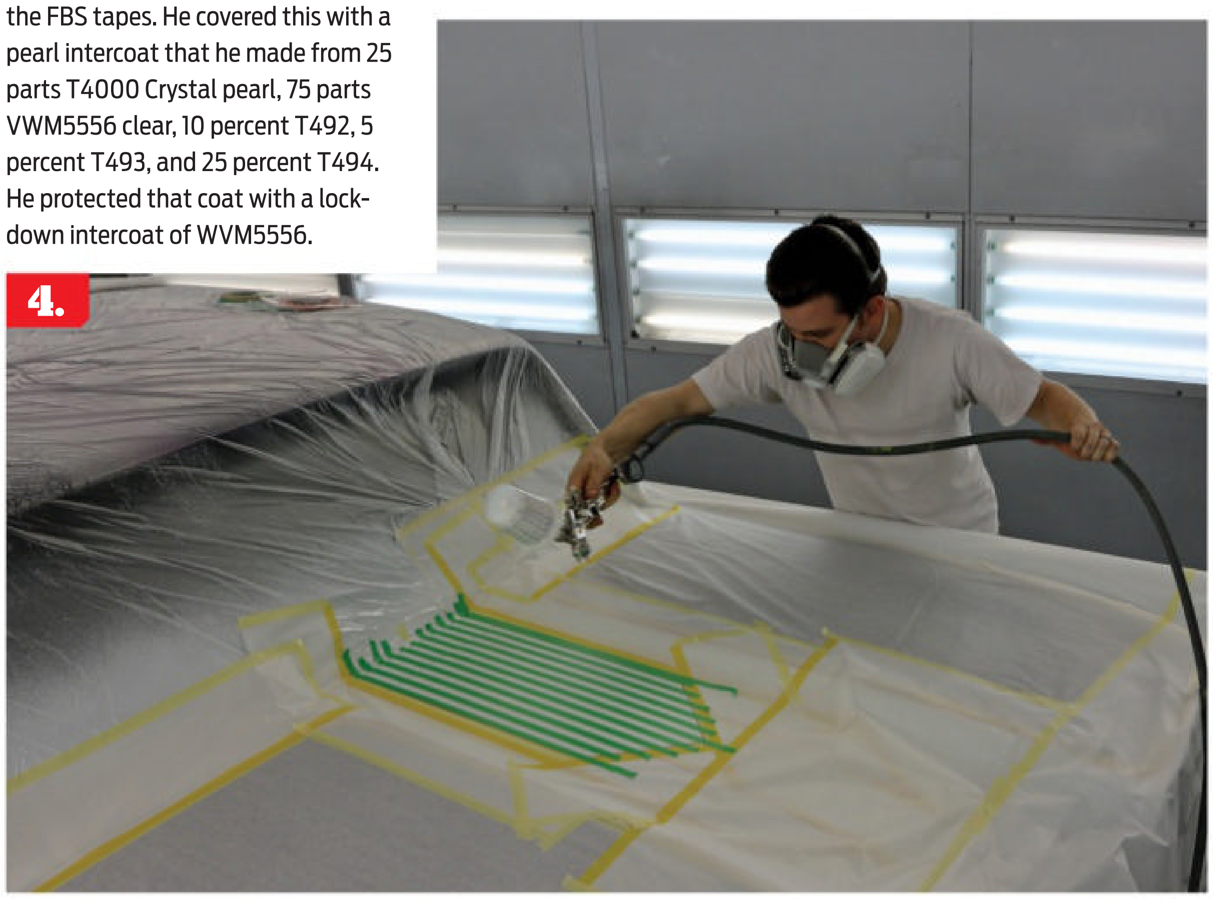

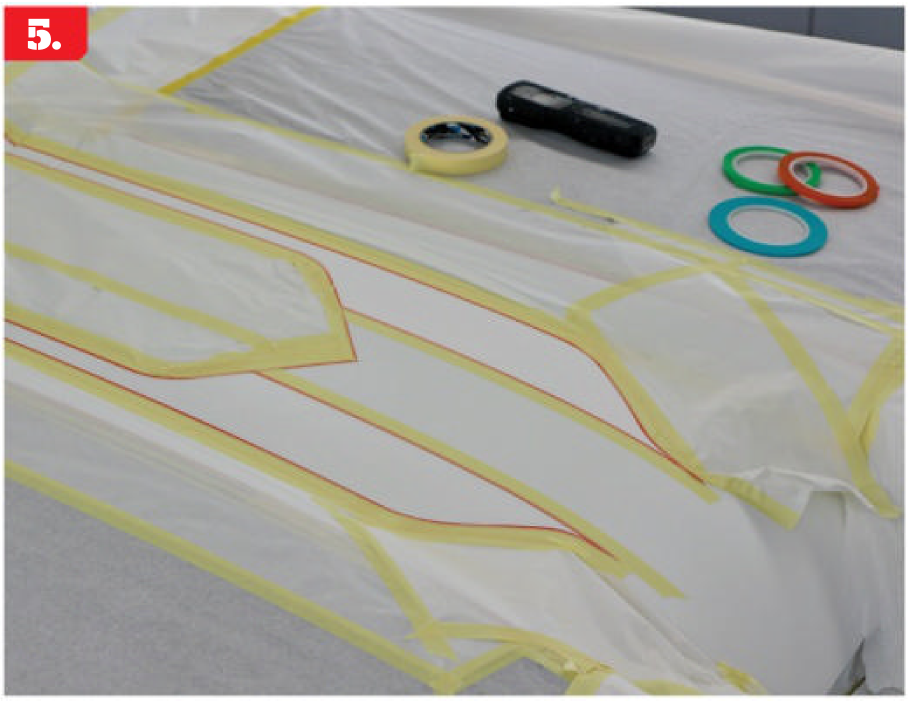
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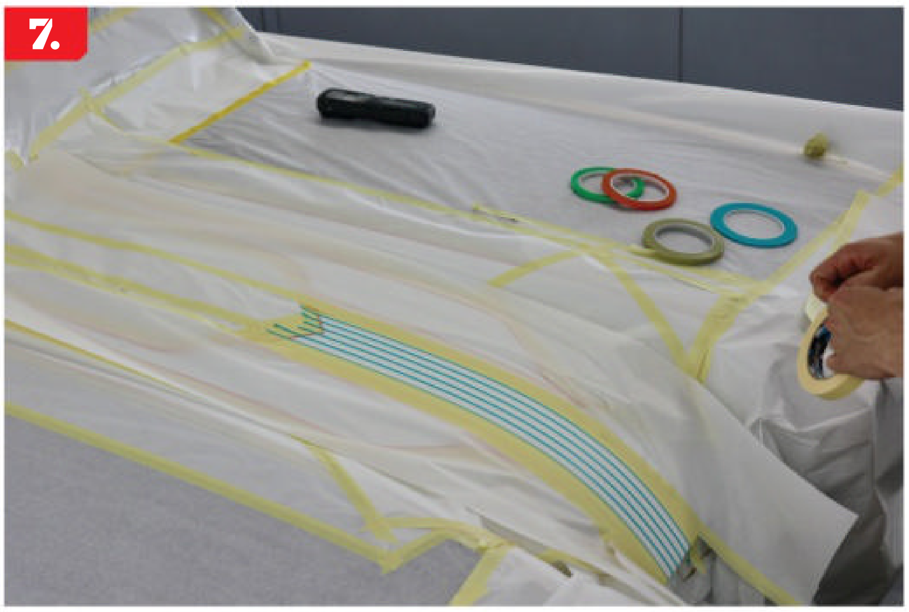
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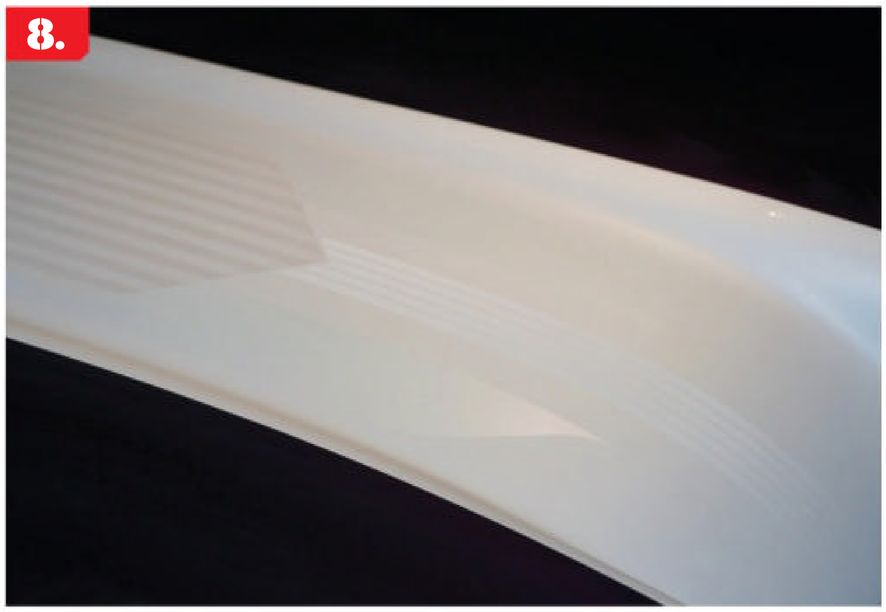
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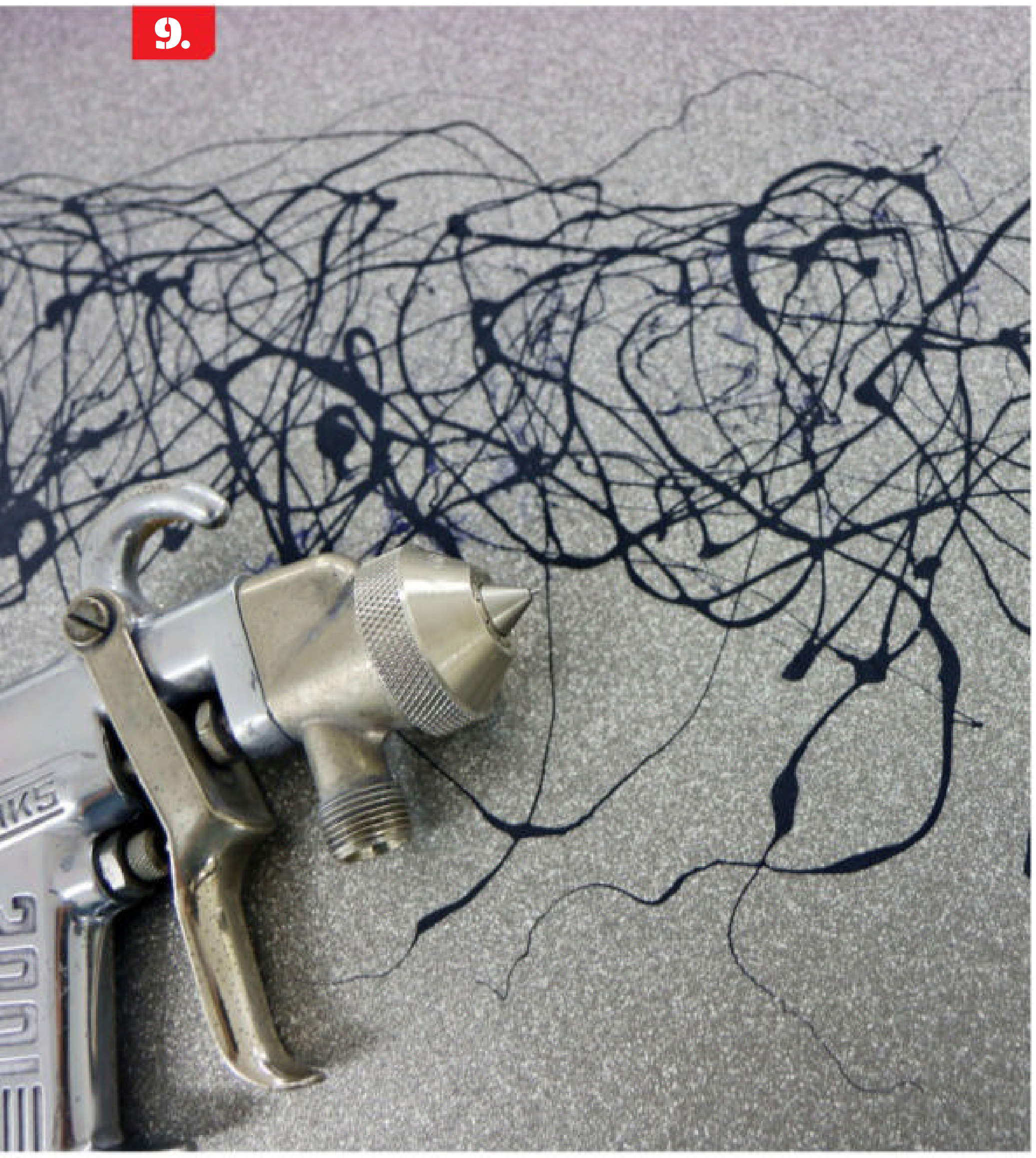
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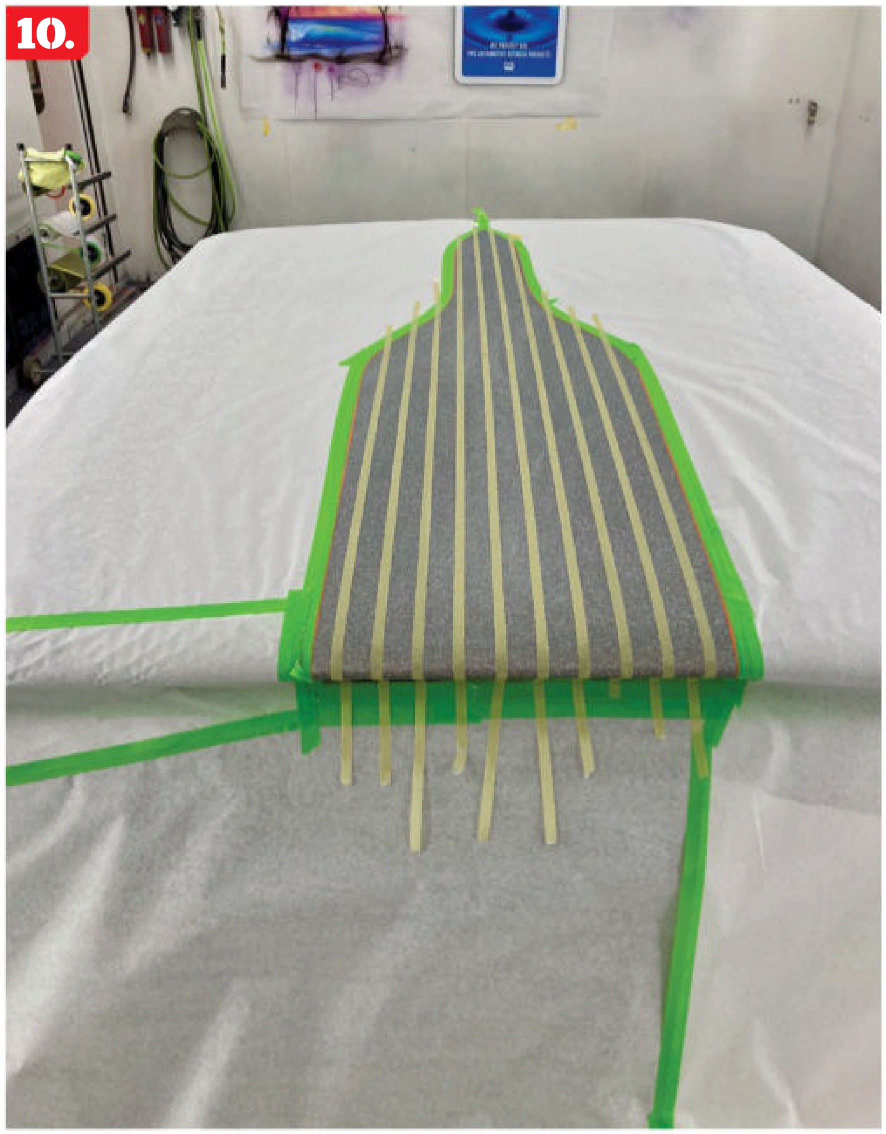
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5. Sullivan then remasked the pearled area to expose the blades that flank the center graphics. Paper can stick to waterborne basecoats, even if dried overnight. But quality, poly-faced paper won't stick, so give it a shot.

6. He mixed a batch of VWM5556 with 10 percent VM4603 Violet Murano Pearl. That also got the 492, 493, and 494 formula. He shot a few light coats of that.

7. He then removed the masking from the center and laid some 1/4-inch stripes with the FBS tape. That area got T400 white that fades from opaque at the base of the trunk to transparent toward the window. He repeated the process on the hood.

8. You'd think white graphics wouldn't show up on white backgrounds, but here we are. The pearls and opacity distinguish each element from the others.

9. Sullivan re-flaked the top then ran some unreduced black lacquer through a Binks 2001 equipped with a veiling tip and cap. The squiggly pattern was a standby for things like cake decoration and fiberglass lampshades when this paint style was popular. Iwata makes a gun that shoots what it calls a disheveled pattern. But save your pennies: an SGD-71 usually runs a grand or more—if you can find one.

10. He laid out a rocket-inspired design in the roof and striped out a pattern with FBS' 1/8- and 1/4-inch vinyl tape.

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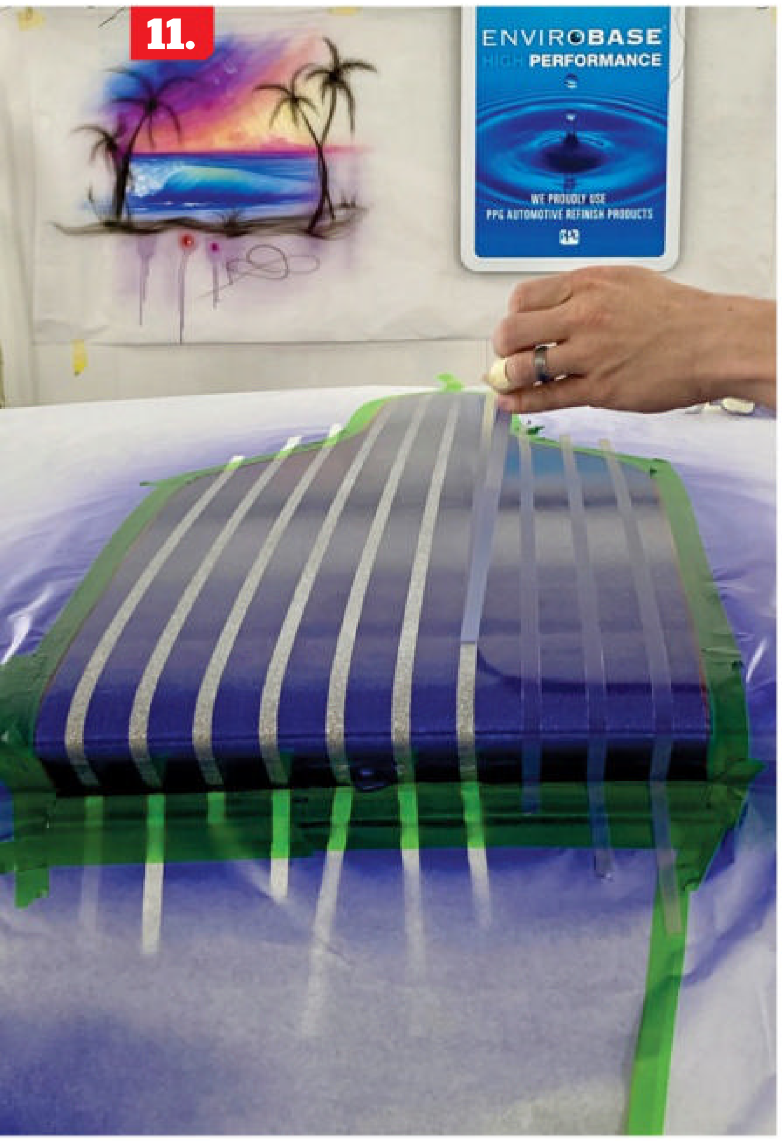

11. Sullivan sprayed Billy Blue candy mix in the VWM500 midcoat. The purple fades from back to front.

12. He masked off a second stripe pattern. He shot another Billy Brew fade, but this time in the other direction (from front to back). After removing the masking for the second stripe pattern in the center, Sullivan shot another light coat of Billy Brew purple.

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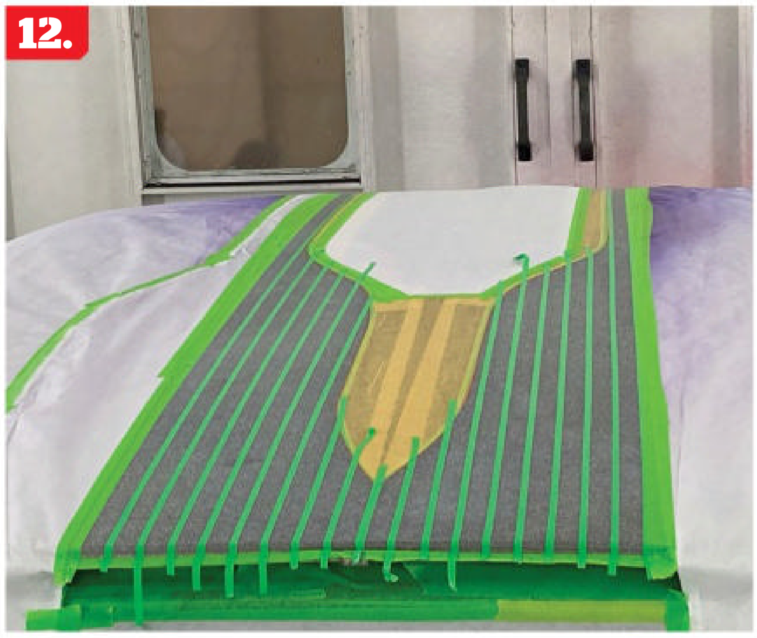

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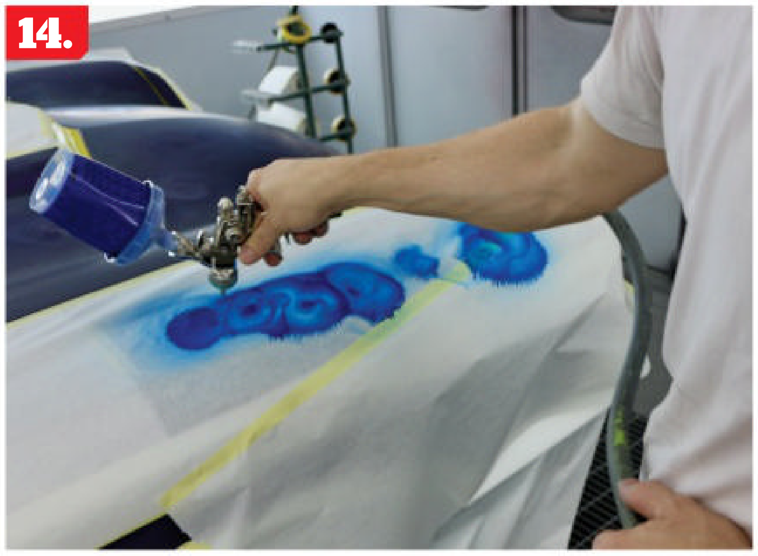

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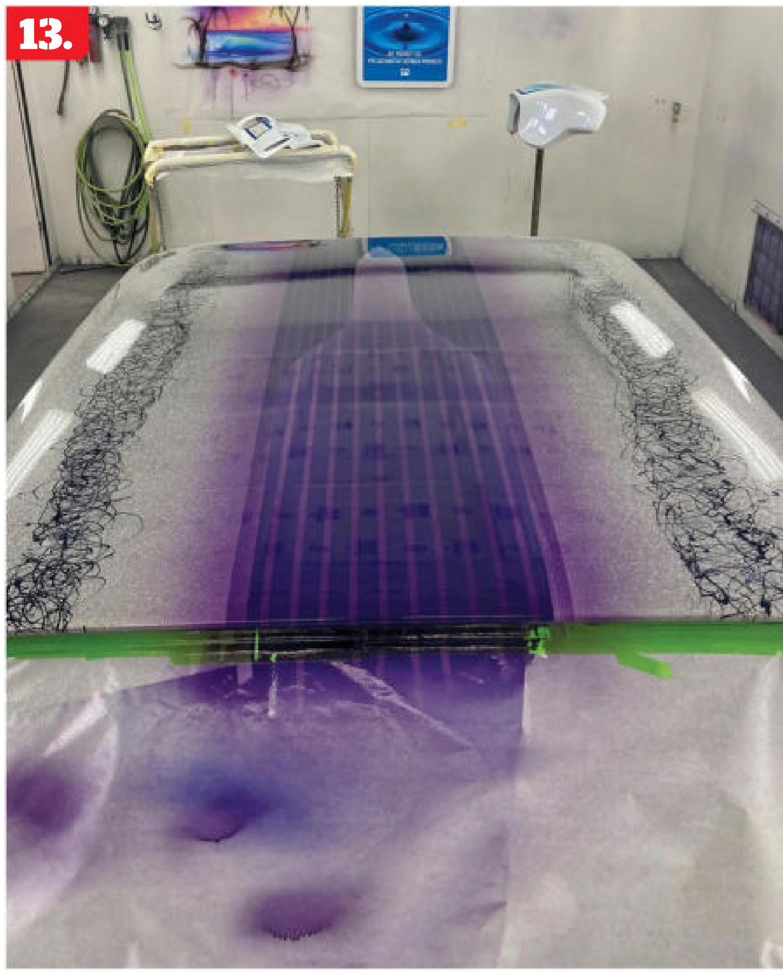
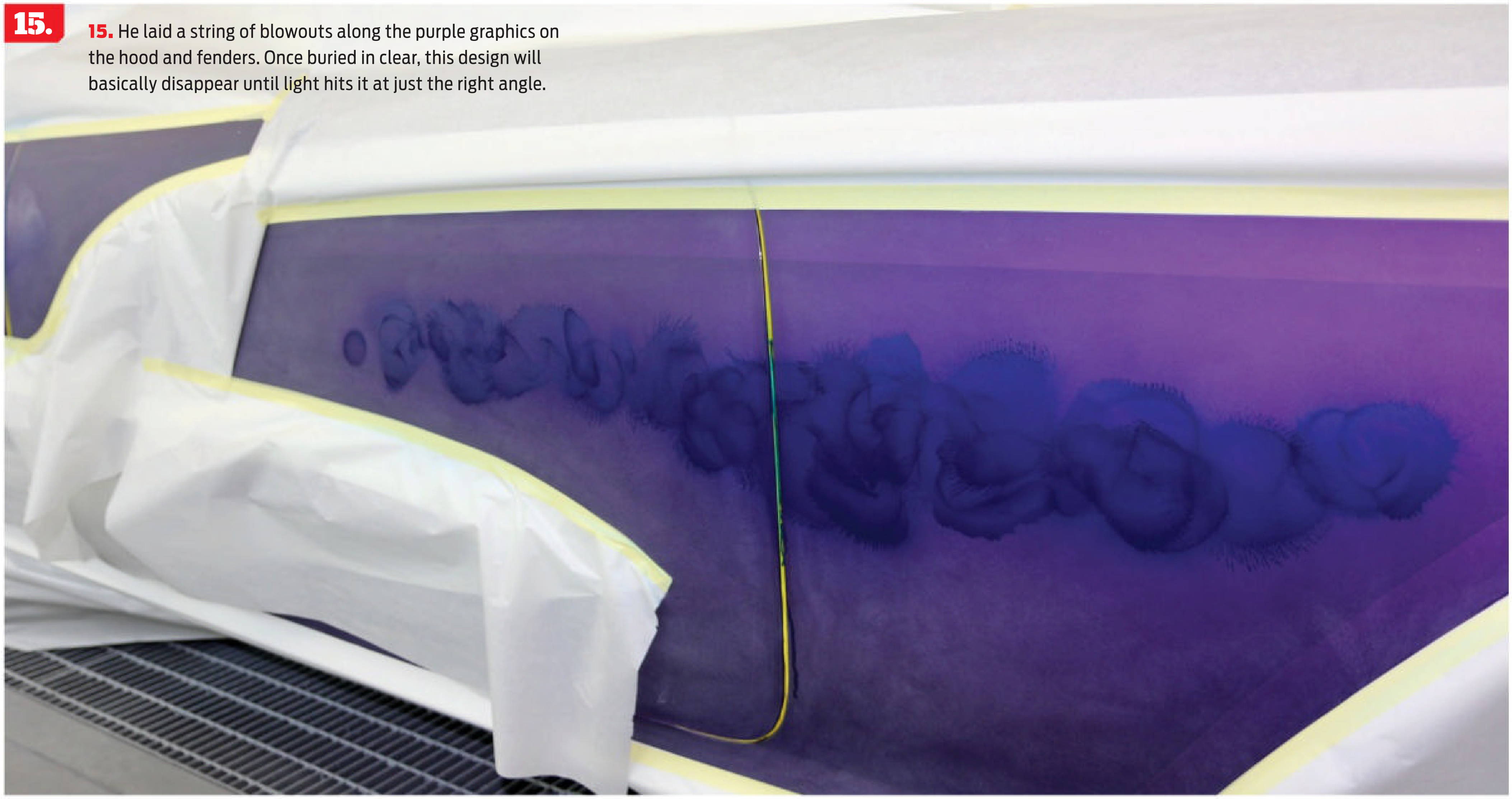


13. He masked the graphics that he shot along the center, removed the masking from the remainder of the roof, and blew another fade from the graphics to the veiling. Here's how it looks under VC5700 mixed as a lock-down clear.

14. Then he shot some blowouts. He mixed T411 Blue with 10 percent T492, 5 percent T493, and over-reduced it with 50 percent T494. Turn the fan adjustment in all the way (no pattern), blast some paint in a spot, then back off the trigger to blow the color around with the gun.

15.

15. He laid a string of blowouts along the purple graphics on the hood and fenders. Once buried in clear, this design will basically disappear until light hits it at just the right angle.



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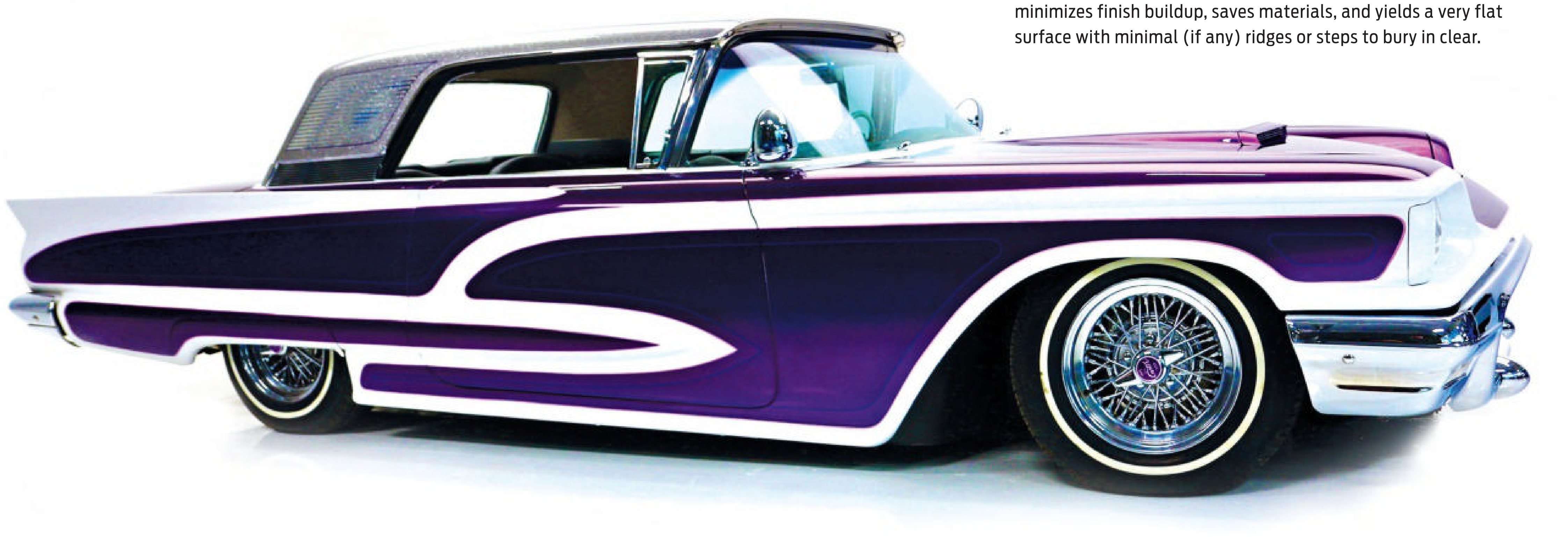


16. Sullivan finally buried everything in VC5700 mixed as a conventional final clearcoat. Spraying the purple and white areas independently of each other instead of over each other minimizes finish buildup, saves materials, and yields a very flat surface with minimal (if any) ridges or steps to bury in clear.

I meant to do that.

Sullivan did something that usually makes paint reps like Stoll squirm: he dry sprayed a panel. Only in this case, Sullivan was following Stoll's orders.

In the straight world, dry spraying falls under the heading of poor practice. It makes sprayed paint particles tack up before they land. So, rather than flow out into a glossy skin, these partially dried globules stack up as a textured finish. And in a world where everything must match existing finishes—which are usually smooth—any deviation is a flaw.

But for every rule, there's almost always an exception. Take dust. Best practice says to keep it out of our paint mixes. But it is dust made from ground-up materials with reflective surfaces that give metallic and pearl finishes their reflective characteristics. With some thought, the results of so-called poor practice can turn into features.

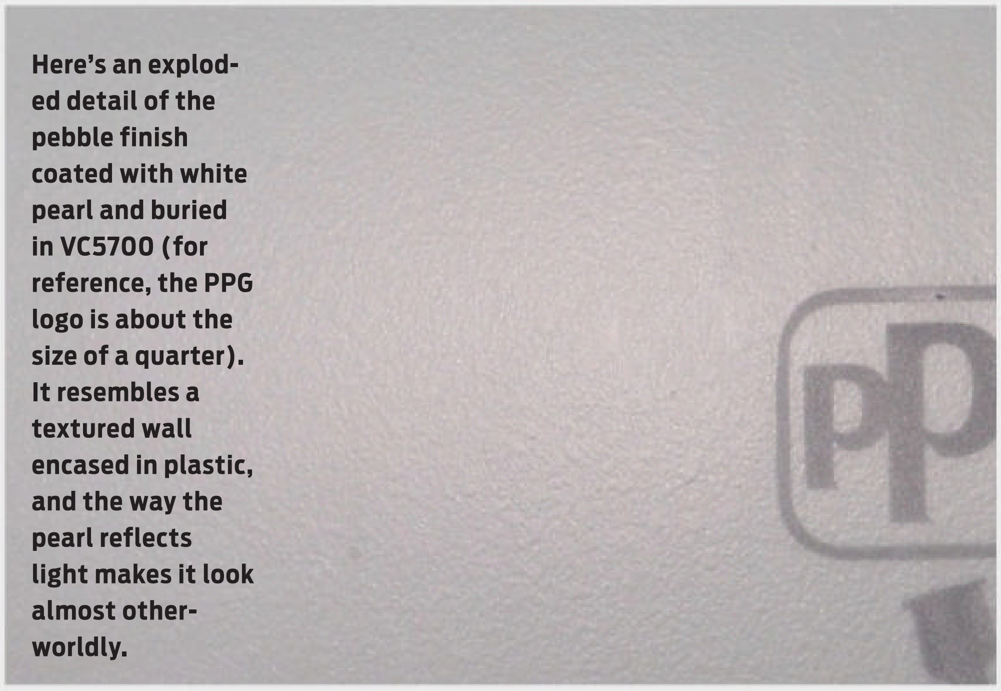
In this case, dry spraying is a feature, or at least the foundation for one. It's over this texture that Sullivan laid a coat of clear with a pearl additive. Pearl additives are really nothing more than reflective minerals ground to a crystalline powder (the dust we invoked earlier).

Think of the grains in the powder as mirrored salt or sugar crystals. The angles of these facets vary, and that makes each one reflect light at a slightly different angle from the others. This random orientation causes light reflected from the surface to diffuse or spread out over a larger area. Pearl laid over a perfect surface can glow; one laid over an imperfect one can glow like crazy.

Like many custom-painting techniques, this lends itself to detail work. Anybody can accidentally get that dry-sprayed finish, but it takes some technique to do it consistently over a large area. Even if it was possible, a whole car done this way runs the risk of looking a little too extra. And a little too extra is how much clear it takes to fill in that texture. So, practice some restraint if only for your financial health.

This is far from the only example of poor practice resulting in an interesting and desirable finish. Just about every popular custom-painting technique—freak dots, veiling, lace painting, splatters, crackling, and marbling—has one foot planted firmly in so-called poor practice.

So next time you screw up, think of a way and place where you could use the result. Honor thy error as a hidden intention and you, too, could invent the next trend.



Here's an exploded detail of the pebble finish coated with white pearl and buried in VC5700 (for reference, the PPG logo is about the size of a quarter). It resembles a textured wall encased in plastic, and the way the pearl reflects light makes it look almost otherworldly.

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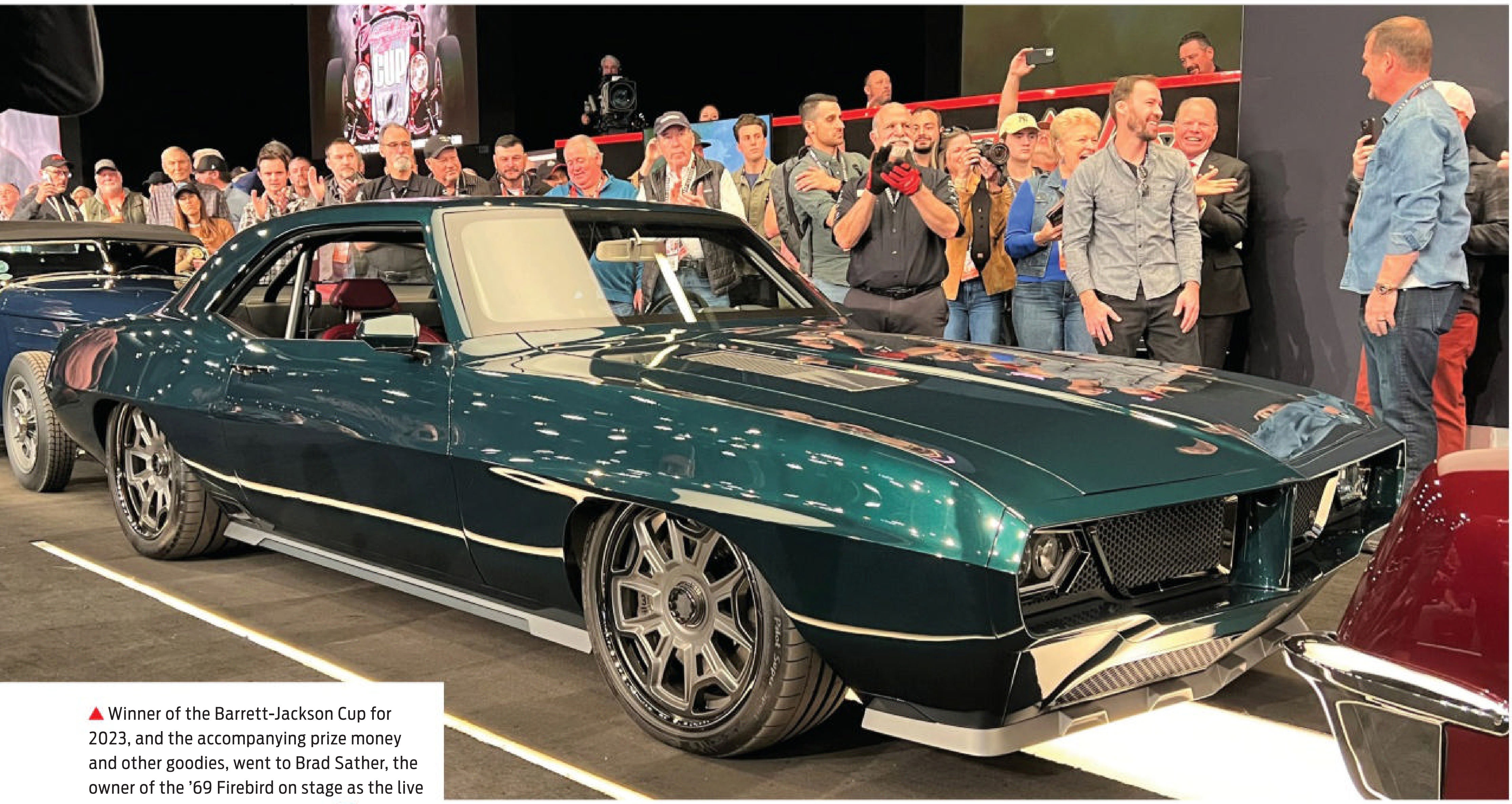
Barrett-Jackson CUP 2023

Known for Auctioning the Most Desirable Cars, They Now Recognize the Greatest Hot Rod Builds

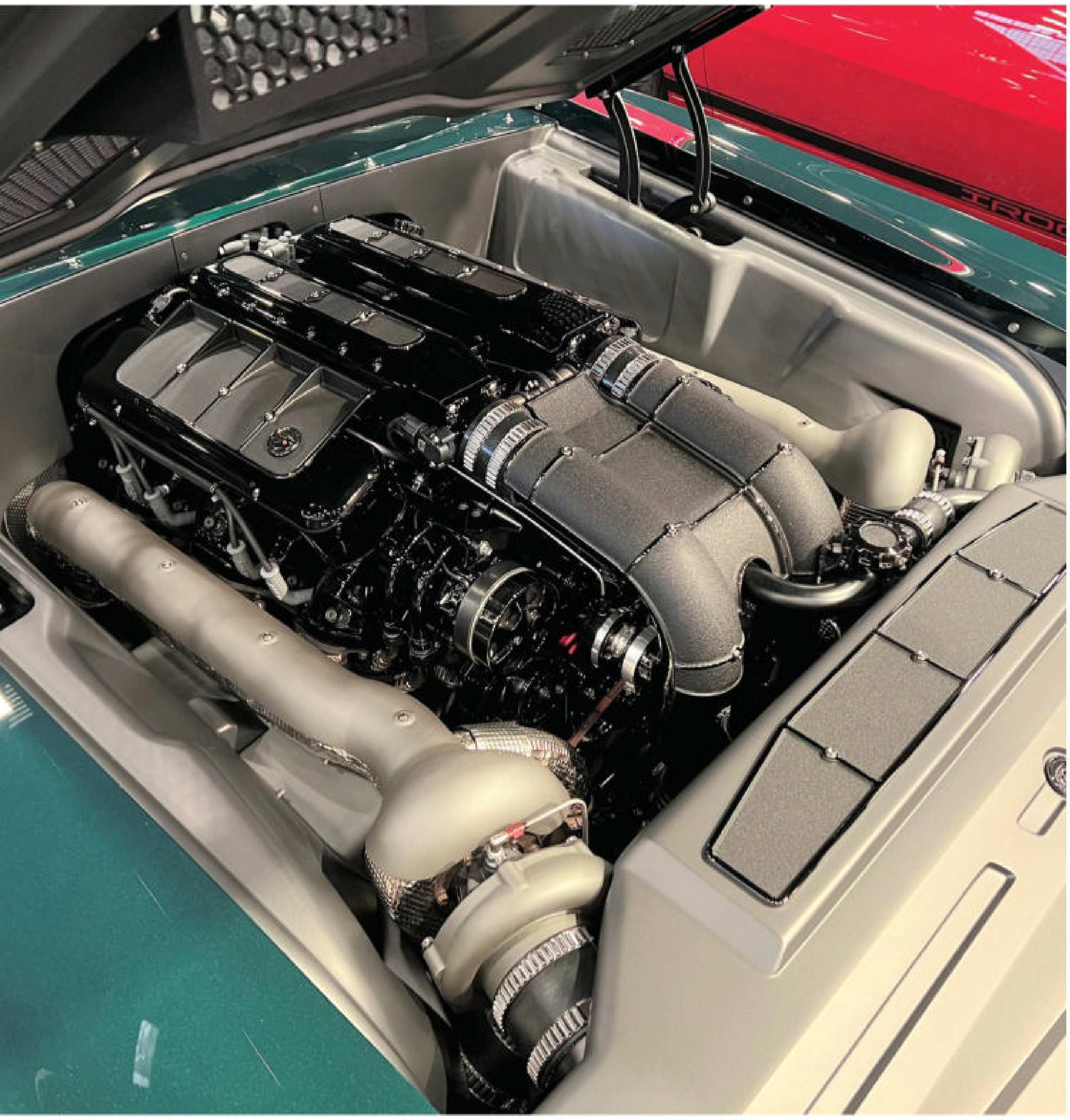


▲ Winner of the Barrett-Jackson Cup for 2023, and the accompanying prize money and other goodies, went to Brad Sather, the owner of the '69 Firebird on stage as the live television activities "heated' up. ▼

Barrett-Jackson
JANUARY 28, 2023
BRAD SATHER
$20,000
TWENTY THOUSAND AND 00/100
Barrett-Jackson
CREW

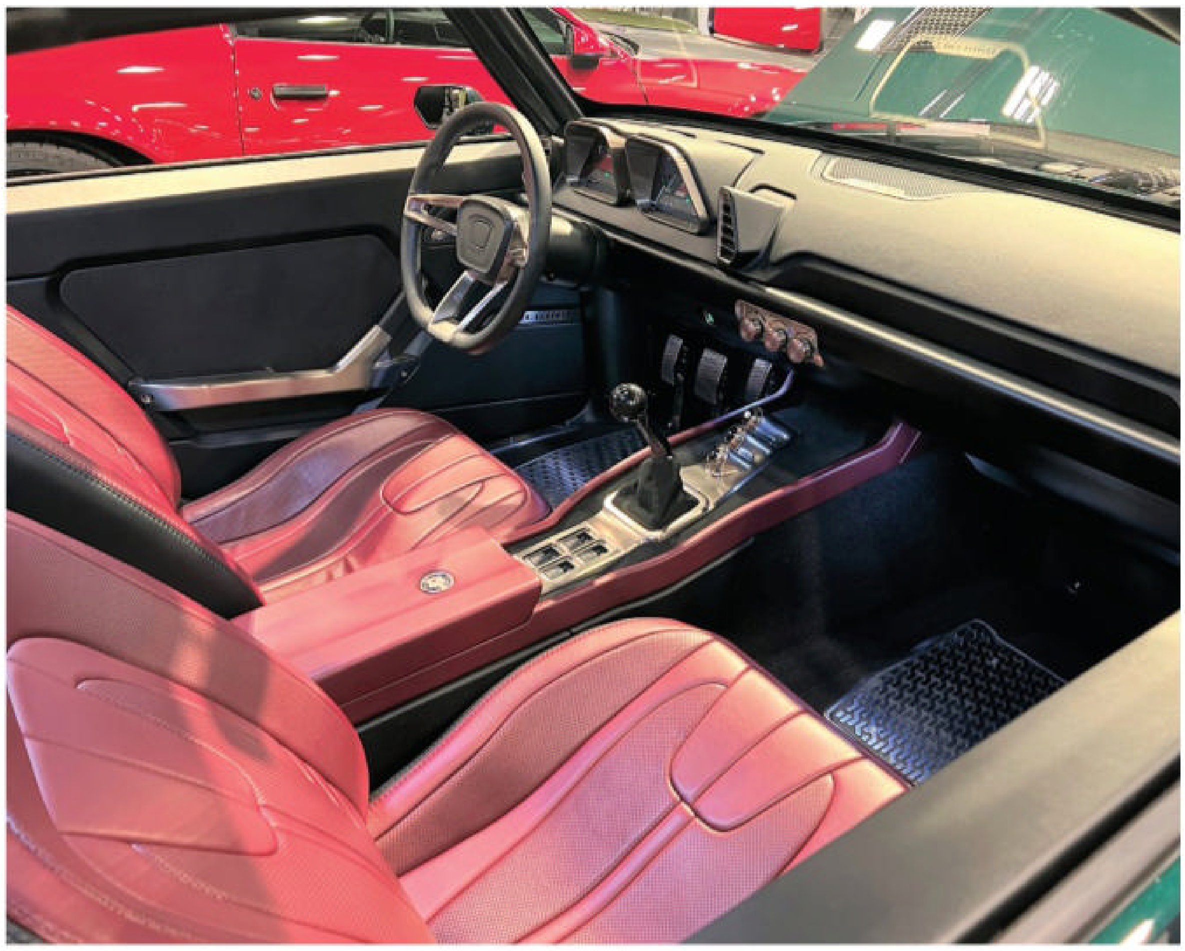
FINALIST
CUP
Barrett-Jackson
Summit

▲ Prior to the Top Five and the People's Choice selections being brought onto the stage, Bobby Alloway *(left)* was interviewed about what it took to make the Top Five. All took place in front of a very large crowd gathered under the tent and a live television audience.



▲ The Firebird is powered by a 482ci twin-turbo Butler Performance Pontiac V-8 that produces 1,500 hp.

▼ The interior was stitched by Cato's Upholstery shown in its street trim. The driver seat can be quickly modified to provide the proper seating for Sather when he makes those 200-mph standing mile runs.



BY **BRIAN BRENNAN** PHOTOGRAPHY BY **THE AUTHOR**

The Barrett-Jackson auctions are well known for their automotive venues. In an attempt to become more inclusive of all parts of the automotive world, they initiated the Barrett-Jackson Cup a few years back. Initiated to recognize more than cars that are just auctioned, the Barrett-Jackson Cup brought out 50 of some of the finest hot rod builds in the country to compete for one significant award and a cash prize. Initially it was the late Pete Chapouris, of SO-CAL Speed Shop fame; Bobby Alloway, of Alloway's Hot Rods; and Bob Millard, a lifelong indoor car show judge, who were the three-person team who determined the overall "Cup" winner.

Originally held in Reno, Nevada, the pursuit of the Barrett-Jackson Cup has moved for the second time and for the foreseeable future, to Scottsdale, Arizona, where it is a major part of the largest and arguably most exciting of the Barrett-Jackson Auctions. It is a nine-day affair where more than 1,600 collectable cars, trucks, motorcycles, and other collectibles cross the stage. The Scottsdale site for the Barrett-Jackson Cup, which is comprised of 50 pre-entered cars and trucks, selected by Barrett-Jackson staff, and its People's Choice award, are part of the main stage anticipation. On the morning of Super Saturday, the five finalists for the "Ultimate Best in Show" will be announced on stage, and the winner, as well as the winner of the "People's Choice Award," will be crowned prior to that day's collector car auction.

The new home also brought several significant changes, with the naming of two of the hot rod industry's most highly recognized and respected builders to act as the official judging team, Bobby Alloway and Troy Trepanier of Rad Rides by Troy. There is no denying their long list of accomplishments and contributions to our hobby. These two titans of our industry are the beginning, middle, and end of the judging line for the Barrett-Jackson Cup. The People's Choice award is just that, the people's choice, and is (was) accomplished through online voting.

Also referred to as the Ultimate Best in Show winner, the car owner receives a $20,000 cash purse among other prizes. The Cup winner is selected from the collection of the Top Five finalists, selected by Alloway and Trepanier, and each will receive a tool chest and gift certificates. The People's Choice winner is also included in the introduction of the Top Five.

For 2023, the Barrett-Jackson Cup winning hot rod was the '69 Pontiac Firebird belonging to Brad Sather of Georgetown, Texas, while the builder is none other than Troy Gudgel and his highly talented team of coachbuilders from BBT Fabrications of Mahomet, Illinois.

▲ Another of the Top Five is a former *Modern Rodding* cover car, the AMBR-winning '34 Chevy highboy roadster belonging to Jeff Breault and built at Devlin Rod and Customs.

◀ Rear view of the Chevy roadster shows off the very cool looking retractable top and the neatly tucked away trunk-mounted gas tank.

◀ A custom-built 441-inch LS3 Dart block by Keith Dorton with a custom intake by Johnson's Hot Rod Shop is backed up to a Bowler Performance–prepped TREMEC five-speed trans.

▼ The BASF Breault Blue was applied by Devlin Rod and Customs while interior and top work was aptly handled by Chuck Rowland Interiors.

The Top Five

The Top 5 is comprised of cars and trucks from five of the country's top builders. The Ringbrothers with their personal '48 Chevy Loadmaster pickup, Classic Car Studio with Wade and Esmeralda Sutton's '56 Ford F-600 Custom (four-door) pickup, Tim Devlin of Devlin Rod and Customs with the '34 Chevy highboy roadster belonging to Jeff Breault, Dave Kindig with the '58 Lincoln Continental custom owned by Jenny and Bob "JB" Salter, and Troy Gudgel of BBT Fabrications was on hand with Brad Sather's '69 Pontiac Firebird.

'69 Pontiac Firebird

Best of Show … Barrett-Jackson Cup Winner

Brad Sather's '69 Firebird is on the Feb. '23 cover of *Modern Rodding* and is the winner of the Best Street Machine category in the 2022 Triple Crown of Rodding. The 199.027-mph Firebird is a class record holder at ECTA in the standing mile. It has also captured the Goodguys Street Machine of the Year. (It topped 200 mph going out the "back door.")

The Firebird is powered by a 482ci twin-turbo Butler Performance Pontiac V-8 that produces 1,500 hp. The six-speed matched to the Honcho V-8 was prepped by Bowler Transmissions. All the powertrain rests between a Roadster Shop Fast Track chassis complete with a Roadster Shop IRS. The one-off wheels come by way of EVOD Industries.

The body, with its widened front fenders, one-off aluminum hood, and full bellypan, is painted in PPG McLaren Racing Green by the squirters at Relic Restomods. The interior was stitched by Cato's Upholstery.

'34 Chevy Roadster

This highboy '34 Chevy roadster was built at Devlin Rod and Customs and is owned by Jeff Breault. This roadster was featured in a series of build stories, feature, and the cover of *Modern Rodding*. It is also a past America's Most Beautiful Roadster winner from the Grand National Roadster Show, Goodguys Street Rod of the Year, and a SEMA Battle of the Builders finalist.

Power comes by way of a 441-inch LS3 Dart block by Keith Dorton with custom intake by Johnson's Hot Rod Shop all backed up to a Bowler Performance–prepped TREMEC five-speed trans. All this rests between the 'rails of a custom Roadster Shop chassis with a custom IFS and a custom four-link rear and a set of custom wheels from Greening Auto.

Chuck Rowland Interiors handled the stitchwork while the paint comes by way of BASF custom Breault Blue and applied while at Devlin Rod and Customs. Other custom appointments include the retractable top that disappears and a custom hood.

People's Choice

The People's Choice Award, chosen by fans voting online, went to David Biegler for his '64 Buick Riviera built by Cruzer's Customs of New Braunfels, Texas. This Rivi has taken home other honors in the

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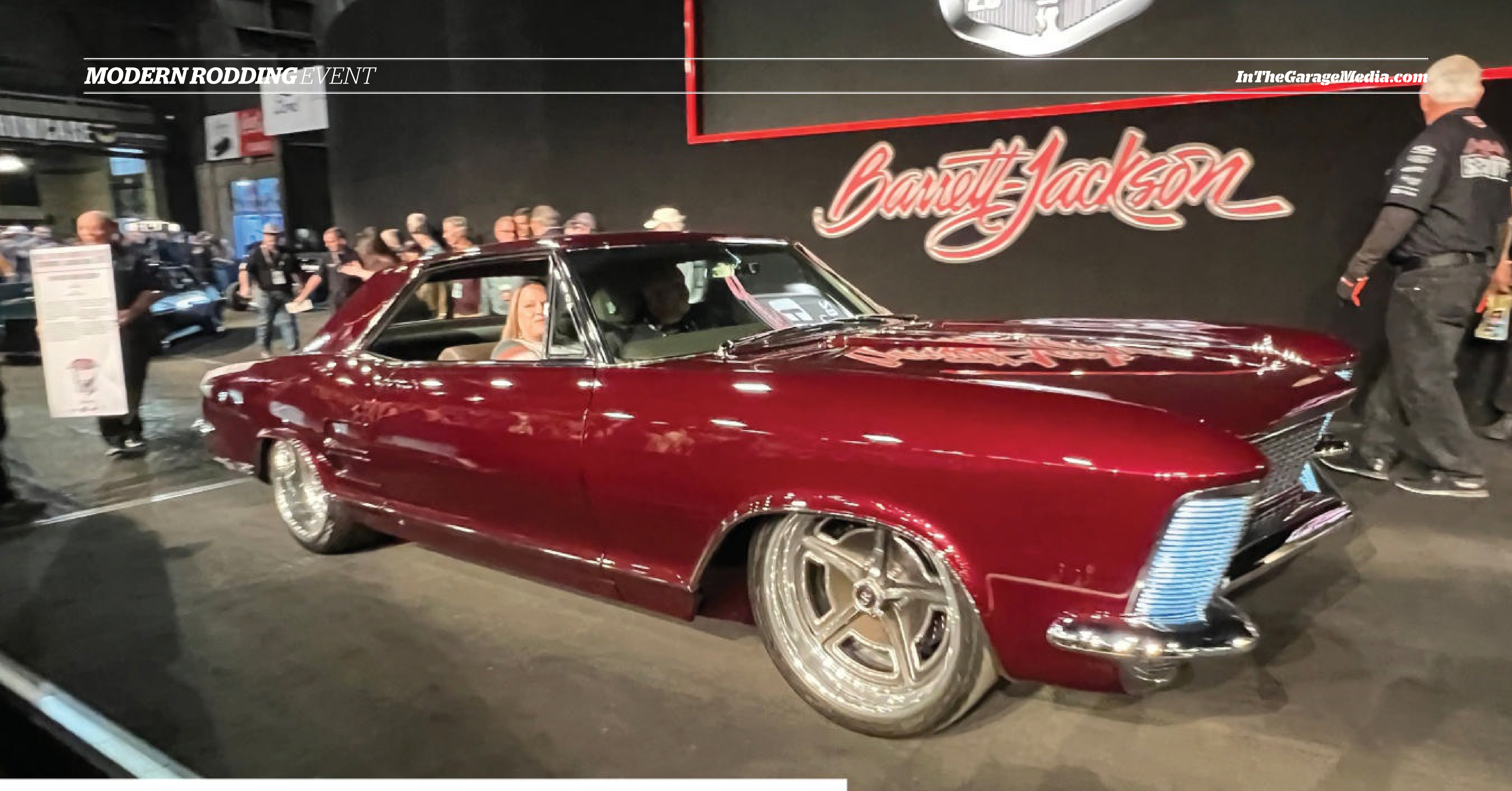
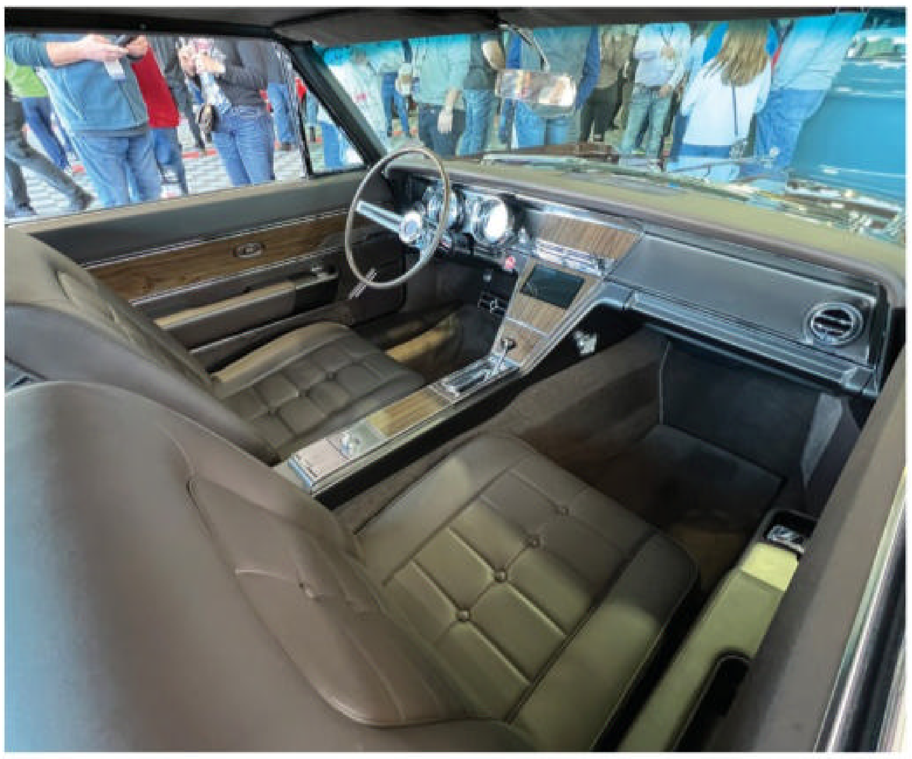


PEOPLE'S CHOICE
CUP
Barrett-Jackson

▲ At the precise moment that the People's Choice award was announced the backdrop changes to signify so. Congratulations to Cruzer's Customs for building such an amazing ride.

▲ Rolling onto the stage is the '64 Buick Riviera belonging to David Biegler that took home People's Choice voted via online balloting.



▶ The interior on the '64 Rivi was given the nod by Avant-Garde Design. Vintage Air A/C and Classic Instruments gauges are but part of the interior package that also includes such trim items as pull knobs and pedals from Billet Specialties.

form of the Goodguys Custom Rod of the Year, Goodguys Gold Award at SEMA, and the Roadster Shop award for the Best on RS … rides on a Roadster Shop chassis.

The channeled '64 Buick Riviera was painted by Cruzer's Customs in a BASF Glasurit Burgundy Velvet Pearl. It also features one-off machine work from EVOD in the form of one-off wheels, grille, and valve covers.

The Roadster Shop Revo chassis corrals a Don Hardy–built 376ci LS3 pumping 550 hp and tucked up to a Bowler Performance 4L70E transmission. We should note that a quick look underhood gives the appearance of the vintage Buick Nailhead V-8, but one needs to look more closely. It's an LS3 in Nailhead clothing.

Avant-Garde Design received the nod for the interior along with Vintage Air A/C and Classic Instruments gauges. Other trim pieces, including pedals, are from Billet Specialties.

'56 Ford F-600 Pickup

One of the truly interesting builds among the Barrett-

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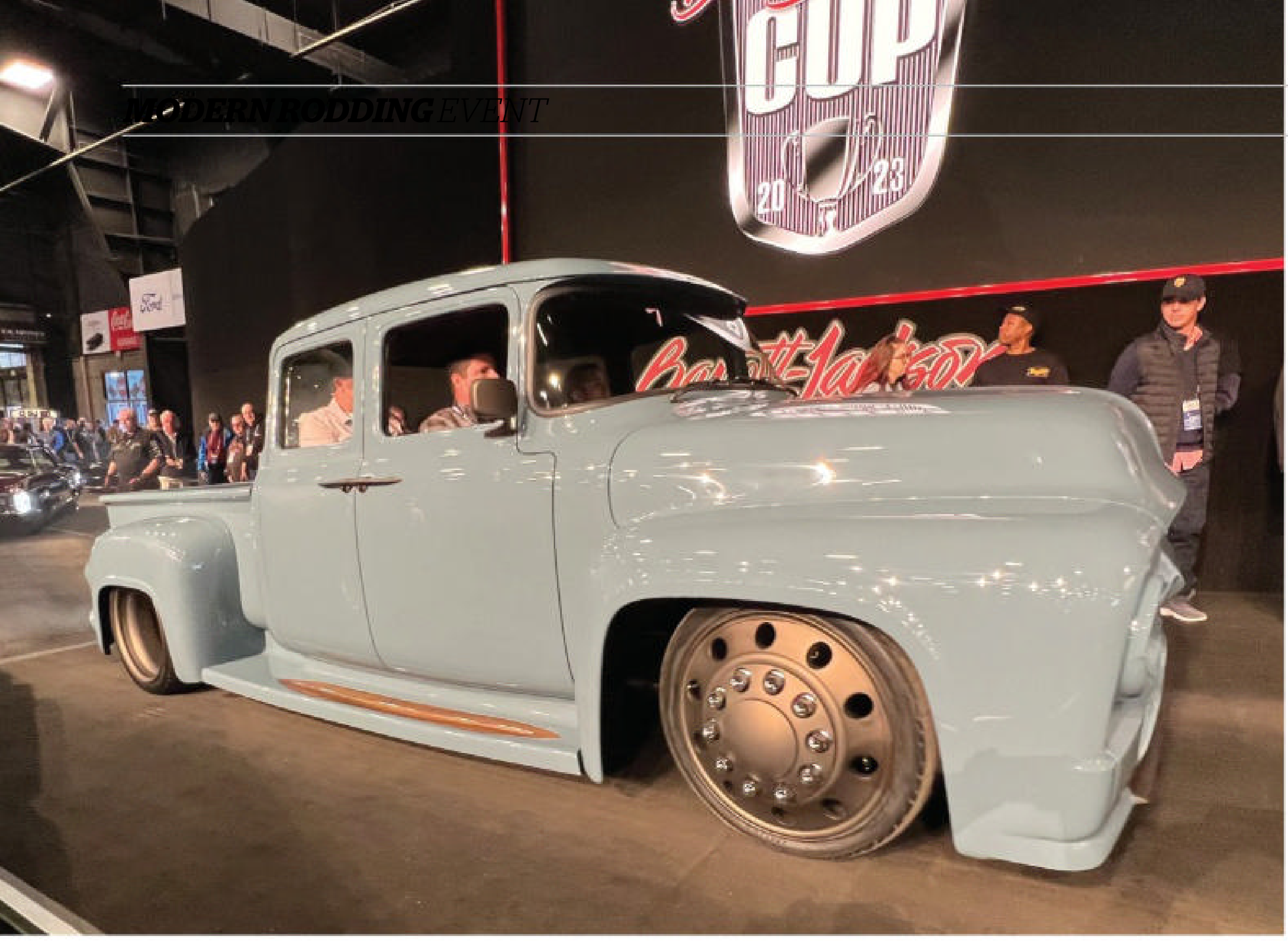

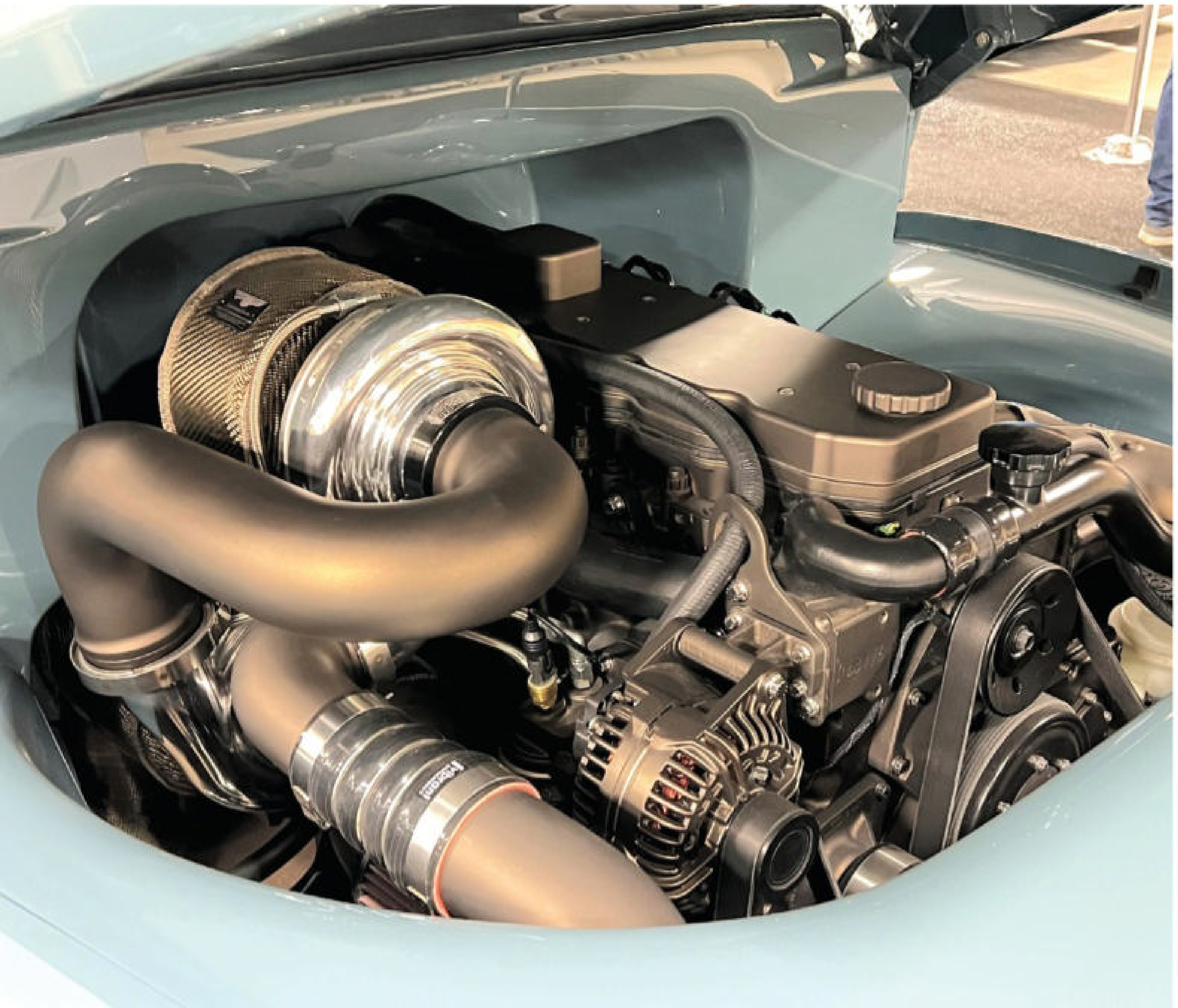

◀ Do you like trucks and do you like Diesel power? Then this '56 Ford F-600 pickup built by Classic Car Studio and owned by Wade and Esmeralda Sutton should do it for you. Another of the Top Five finalists in the Barrett-Jackson Cup competition.

◀ The rear three-quarter look of the '56 Ford begins to show off the massive amount of bodywork handled by Classic Car Studio of this amazing four-door pickem-up. Glasurit Dove Gray was the color selected and sprayed on by Classic Car Studio.

◀ Classic Car Studio received the nod for designing the interior. They also designed the interior while covering the sheetmetal in Glasurit Dove Gray paint.

◀ One must politely chuckle in amazement when looking under the hood of the '56 Ford F-600. A supercharged 6.7L D&J Cummins diesel engine isn't what one might have expected but the sheer physical size and attention to detail is overpowering.

Jackson Cup competitors is this '56 Ford F-600 pickup built by Classic Car Studio and owned by Wade and Esmeralda Sutton. Where to start?

It is powered by a non-conforming hot rod powerplant in the selection of a supercharged 6.7L D&J Cummins diesel engine. The custom chassis was built at Classic Car Studio and the rig rides on 323 Duallysportz wheels. The unique four-door with "suicide" rear-opening doors and custom bed was handled at Classic Car Studio. They also designed the interior while covering the sheetmetal in Glasurit "dove gray" paint.

'48 Chevy Loadmaster 1.5-Ton Pickup

Pretty hard not to see, be stopped, and thoroughly amazed by the SEMA Battle of the Builders-winning '48 Chevy Loadmaster 1.5-ton pickup, built and owned by Ringbrothers Jim and Mike Ring.

Built at Ringbrothers, the '48 Chevy Loadmaster is powered by a 510-inch tall-deck LS V-8 from Goodwin Competition Racing Engines with a Bowler Performance 4L80E automatic featuring transaxle and torque tube mounting. A Kinsler LS-Sprint eight-stack injection and custom stainless steel exhaust system display additional eye appeal on the V-8. The powertrain and body find home on a Roadster Shop custom chassis with Ahlman Engineering components all riding on a set of HRE Performance Wheels 911 centerlocks and a full complement of Goodyear Eagle slicks. Stopping this most unusual hot rod is a full set of Brembo GTTS M6 brakes with six-piston calipers. Ohlins TTX coilover shocks are also part of the suspension.

The '48 Chevy Loadmaster is painted in BASF Glasurit paint over a custom one-off interior.

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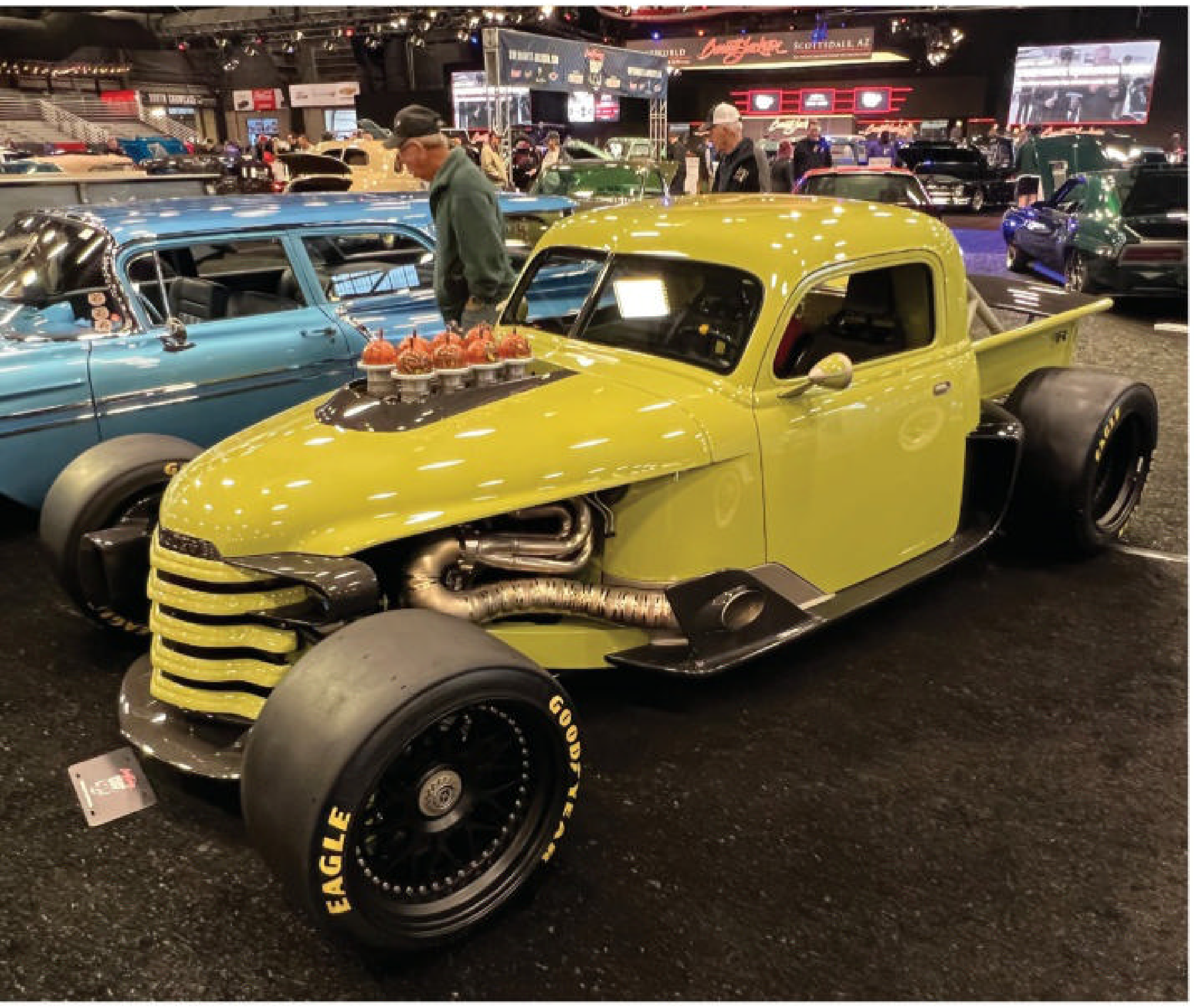


◀ Ringbrothers, Jim and Mike Ring, took home the biggie honors at this past year's SEMA show by winning Battle of the Builders. Making the Top Five of the Barrett-Jackson Cup with their '48 Chevy Loadmaster is another major award to add to the trophy mantel.

▶ The Ringbrothers 1.5-ton pickup utilizes a Bowler Performance 4L80E automatic featuring a transaxle and torque tube mounting all riding within a Roadster Shop custom chassis.

▶ Race car or street truck … it is a bit of a puzzle when looking at the interior. Let it be known the Ringbrothers Loadmaster is at home at either location.

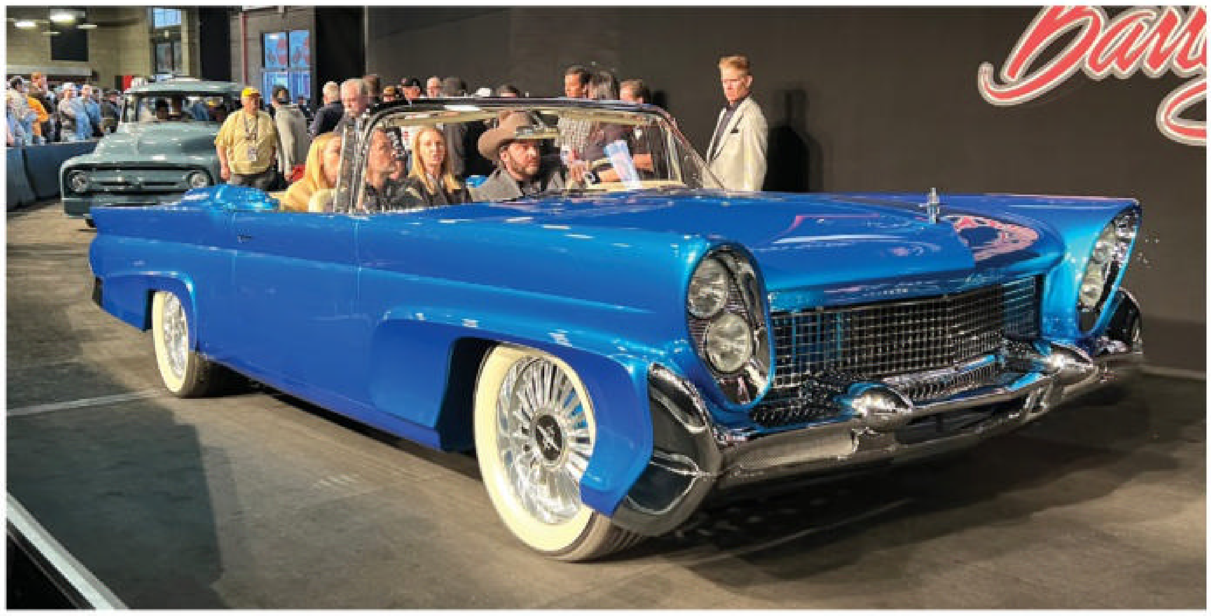
'58 Lincoln Continental Convertible

From the workbench of Dave Kindig of Kindig-It Design, owned by Jenny and Jim "Bob" Salter, is a 600-inch aluminum V-12 with twin custom V-6 Magnuson superchargers built by Ray Falconer, is a '58 Lincoln Continental convertible. Imagine having an engine that's been "detuned" to 1,000 hp from an engine capable of 3,000 hp. Shifting chores are handled by a 4L80E and the powertrain rests in an Art Morrison custom frame with AccuAir adjustable-height suspension. Rolling stock is made up of EVOD Enterprises custom wheels and Pirelli rubber.

Some of the unique sheetmetal work includes the "jewelry box" acrylic hood bubble featuring metalworking contributions from Gene Winfield. More metalwork includes sectioned front fenders and a full-width LED taillight. Dakota Digital received the nod for the digital instruments.

It's a multi-award-winning build having taken home honors from the Grand National Roadster Show, Sacramento Autorama, and was voted Goodguys Custom Rod of the Year finalist.

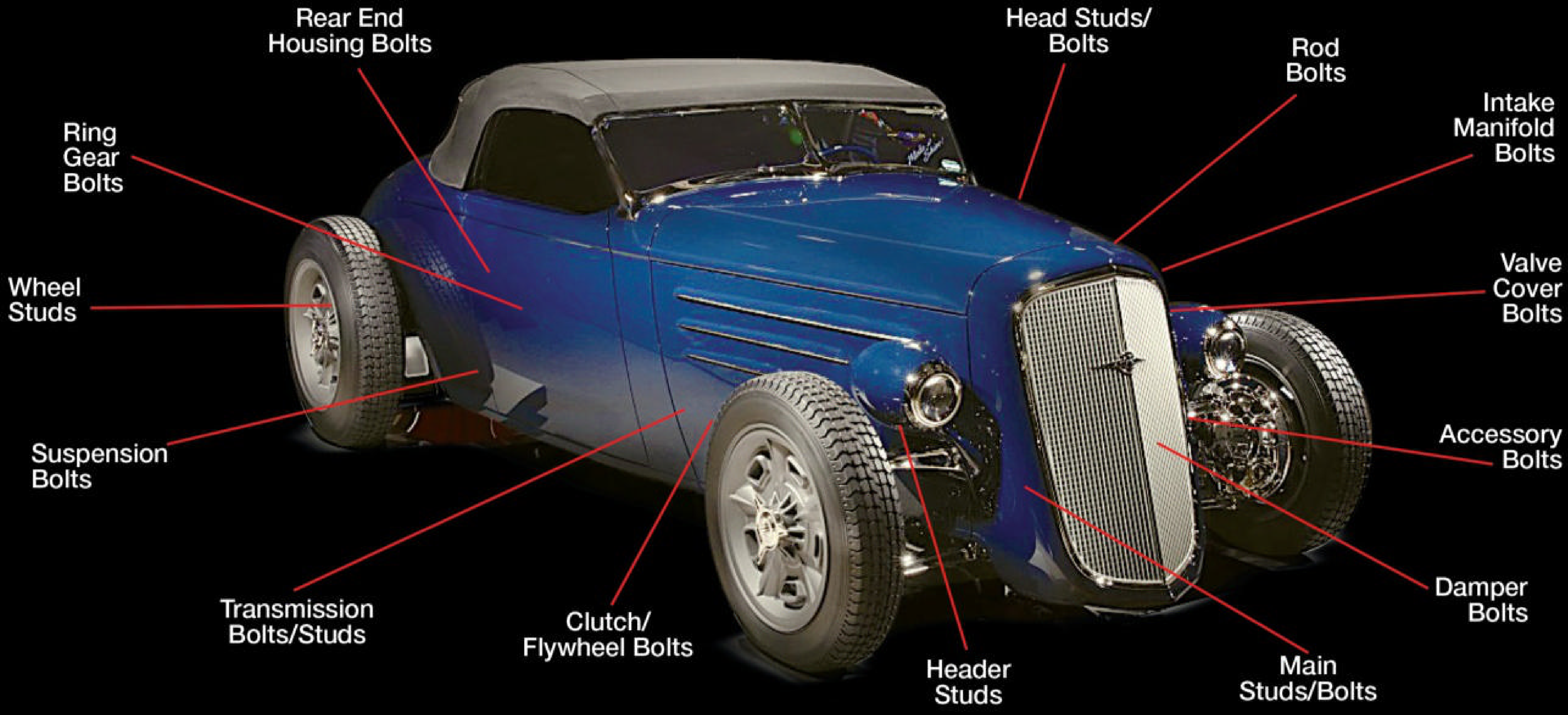
Well, there you have it. The Top Five and the People's Choice from the 2023 Barrett-Jackson Cup competition. The auction, well, that is a sight to behold, and if you ever get the chance to attend it is most definitely a "bucket list" item that you should really experience. For more information on next year's Barrett-Jackson Cup or the auctions themselves you can go to barrett-jackson.com. **MR**



▲ The Top Five wasn't without the "wow" factor. If you want impressive then how about the '58 Lincoln Continental convertible belonging to Jenny and Jim "Bob" Salter and built under the watchful eye of Dave Kindig of Kindig-It Design.

▶ Interior on Maybellene comes from JS Custom Interiors with Bentley BeerFoam-colored leather and Dakota Digital "floating" digital instrumentation.

▶ The larger-than-life Lincoln convertible is truly impressive from any angle but the rear three-quarter with the top up is truly eye-captivating. "Maybellene," as it is named, rides around on an Art Morrison Enterprises chassis.


Rear End Housing Bolts
Ring Gear Bolts
Wheel Studs
Suspension Bolts
Transmission Bolts/Studs
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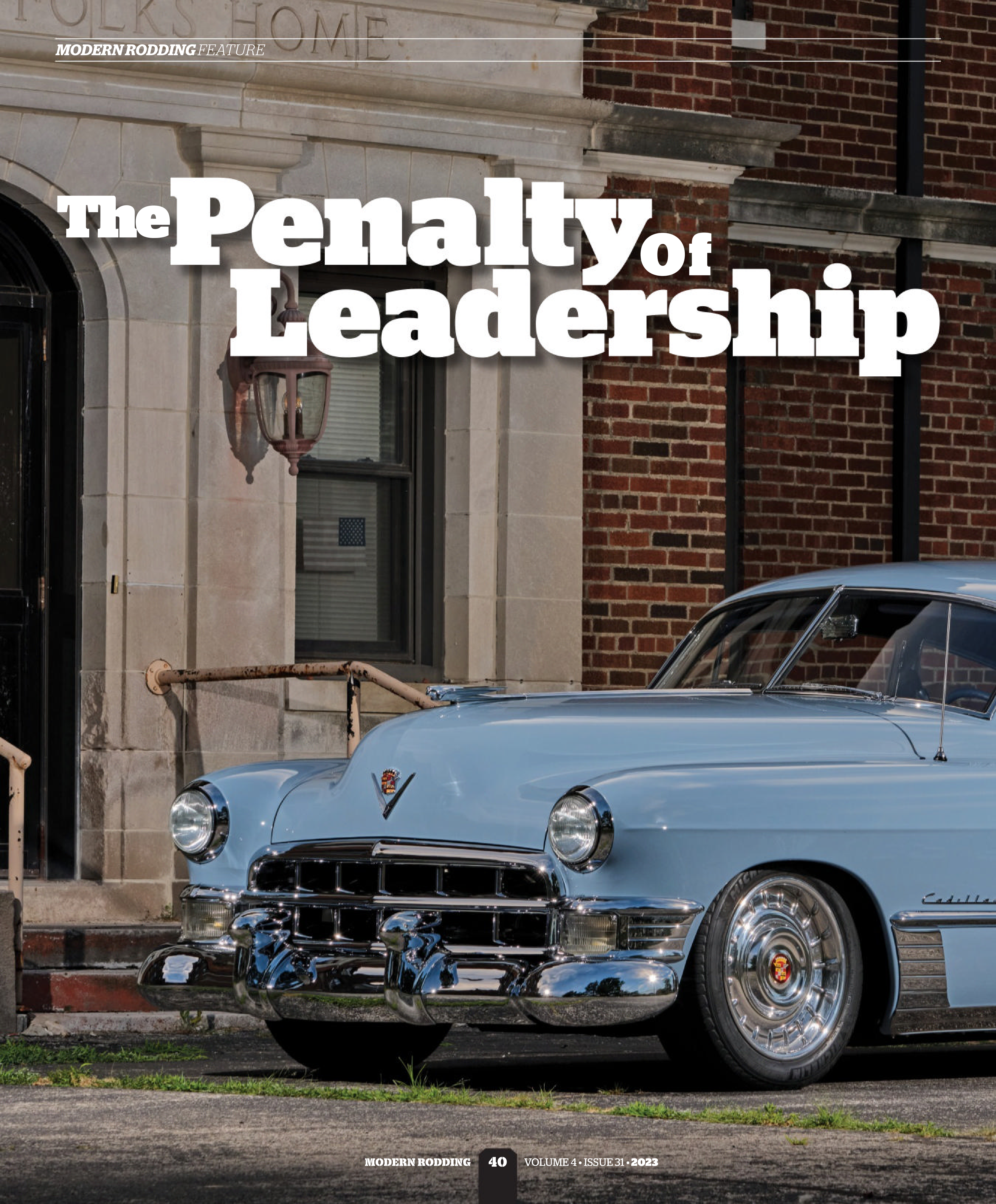
The Penalty of Leadership



“That Which is Good or Great Makes Itself Known ...”

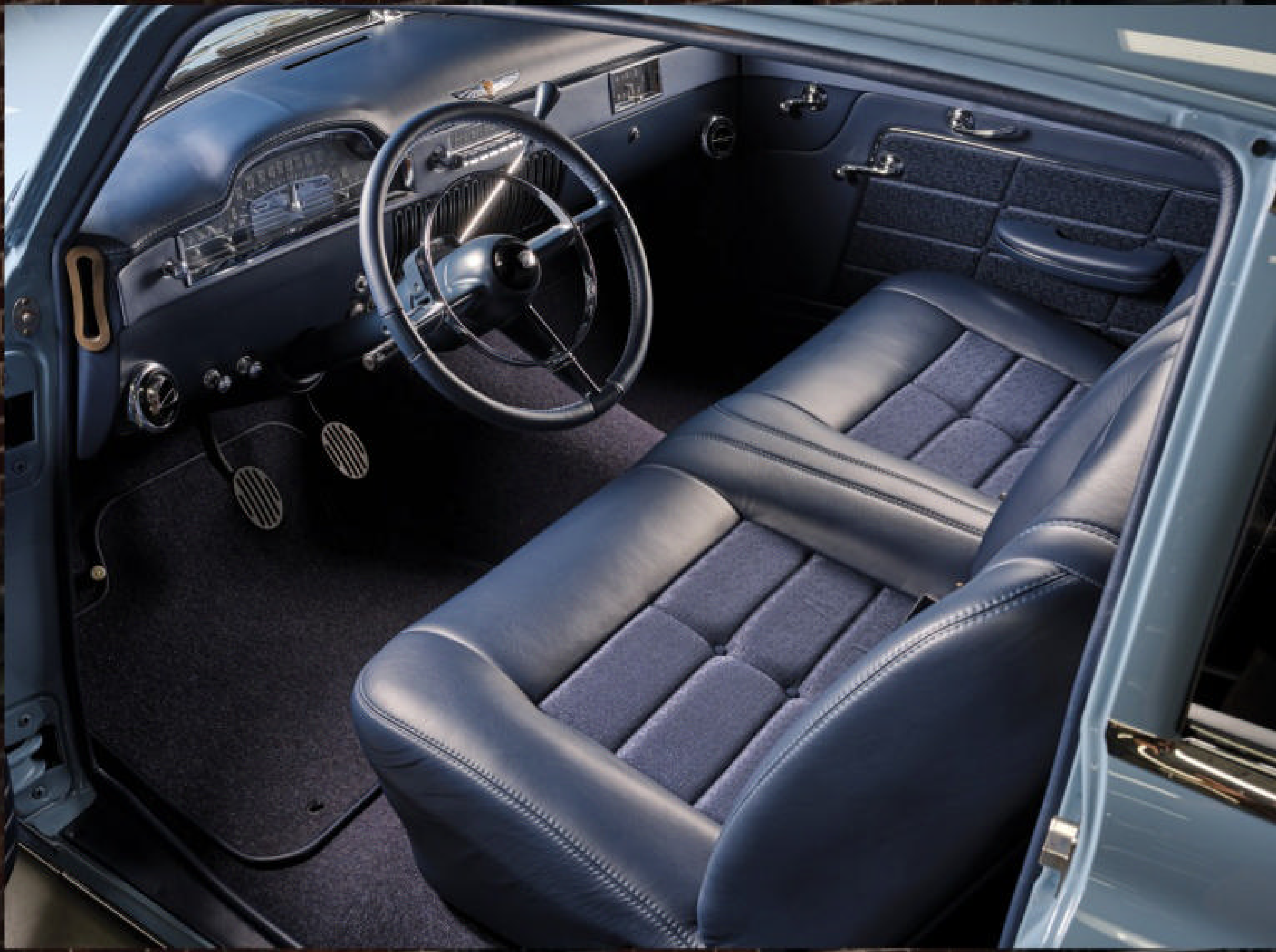
BY **BRIAN BRENNAN** PHOTOGRAPHY BY **JOHN JACKSON**

Over a hundred years ago there was a print ad for Cadillac that appeared only once. It turned up in the January 2, 1915 issue of the *Saturday Evening Post*. The title of the ad was “The Penalty of Leadership.” It didn’t show a picture of a Cadillac or mention the brand by name, but this ad became legendary. Which brings us to our ’49 Cadillac Series 62 Sedanette currently owned by Texas hot rodder Doyle Thomas. It was brought to its existing level of accomplishment by Mark Bowler of Bowler Performance Transmissions (yes, the transmission people).

There was no mistaking which brand was at the “soul” of the ad. So much so that reprints of this ad were handed out by Cadillac for decades to come. It was also reported that Elvis Presley had a print hanging on a wall at Graceland. (This shouldn’t be a surprise given Presley’s affection for the brand, having owned several of them.) The print ad dealt with ignoring those who doubted or second-guessed what Cadillac was forging ahead with in their styling and engineering. Remember, it was Cadillac that first introduced the self-starting engine, fully enclosed body, and the V-8. (I would also venture there are many hot rodders who grew up idolizing the luxurious Cadillac wishing someday to own one.)

At one time owned by Randy Wilcox, this ’49 Cadillac Series 62 Sedanette was brought to fruition by Bowler—but not until there was plenty of today’s modern technology provided. This Caddy shows off plenty of state-of-the-art performance and handling all the while maintaining its vintage presence. The external sheetmetal is all ’49 Cadillac Series 62 Sedanette but there are multiple changes underhood performed by Detroit Speed (DSE) and Hoosier Hot Rods to accompany the DSE complete suspension system as well as the 6.2L (376 ci) supercharged LSA V-8.

The body- and paintwork was handled by Anthony Titzer who then applied the BASF Nautilus Blue. To accent the striking color, a set of one-off EVOD billet aluminum wheels was machined to 8.5x18 inches at the corners and then all attired in Michelin 215/55R18 rubber. Resting behind the one-off wheels is a full complement of Baer Extreme + disc brakes with 14-inch rotors and six-piston calipers. The business end of the brake system is comprised of a custom pedal assembly from DSE that includes their brake booster and a Corvette master cylinder.



The stock frame was retained and fully boxed by Bowler Performance after which the DSE suspension was installed at and by DSE. The suspension is based on their IFS, which includes their front spindles, a rack-and-pinion steering along with an ididit tilt steering column, and JRi adjustable coilover shocks. In the back a DSE QuadraLink with more JRi adjustable coilovers (running 375-pound springs) and a custom rear sway bar by DSE. The DSE components are wrapped around a GearFX custom-assembled GM 12-bolt differential running Posi 3.50 gears.

Pulling this substantial piece of Detroit iron around is a Chevrolet Performance supercharged (four-lobe Eaton) LSA V-8 that began life at 556 hp. The LSA is part of the fourth-generation small-block V-8 family and was originally available from 2008 through 2015 in CTS-V Cadillacs, fifth-generation Camaros, and Corvettes, and now as a Chevrolet Performance crate engine.

As a side note if you are wondering just how reliable the LSA is, how about these stats provided by General Motors: "GM engineers created 370 different power simulations to optimize the LSA. It has been validated beyond 100,000 miles and has accumulated more than 6,400 hours of dynamometer testing. During testing, it was run more than 270 consecutive hours at wide-open throttle without a failure, and it completed actual and simulated 24-hour track tests."

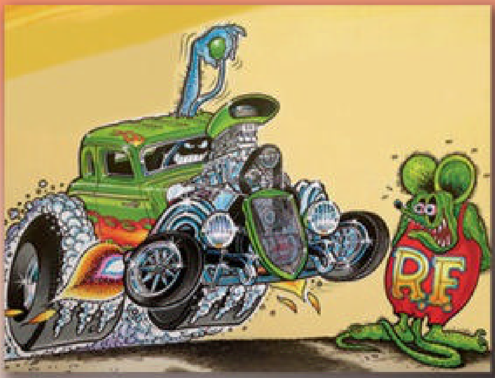
Bowler Performance added to this stout V-8 a GM PWM fuel pump, a SPAL electric fan, along with a custom cold-air intake, including a K&N filter element. To engage unison between the LSA and the Bowler Performance-prepped 6L90E overdrive a GM OE E67 controller was installed. Bowler added a few touches to the overdrive through a 300mm billet 2,200 stall-speed converter, as well as a custom-built valvebody using Sonnax updates. Bowler tests each valvebody to verify it's accurate to OE or better specifications.

Since a hot rod needs a good custom exhaust, Bowler included a twosome of Holley exhaust manifolds coupled with stainless steel tubing coated in black along with a pair of black Cerakote Borla mufflers. Rounding out the engine accessories are C&R custom oil and transmission coolers along with an XS trunk-mounted battery.

There is a lot going on under the hood and between the 'rails so let us not forget to take a few moments and look inside. You will see that the stock dash is now leather wrapped and outfitted with Classic Instruments that represent the original faces with modern innards. To this Vintage Air controls and air registers now handle the inside creature comfort. The ididit steering column includes a shift detent that reflects the needs of an overdrive transmission and is topped with a custom one-off wheel by EVOD. The factory radio, while keeping its original appearance, is also upgraded to modern-day specs. The stitchwork was handled by M&M Hot Rod Interiors in a blue leather with fabric inserts in both the front and rear seating. The pair of bench seats themselves are also the handiwork of M&M. The color and material themes are carried over into the trunk area.

The Cadillac has, is, and will always continue to be representative of what styling and luxury are all about. It figures that this '49 Cadillac Series 62 Sedanette would look just as good today as it did decades ago. MR

Rat Fink comes to life!



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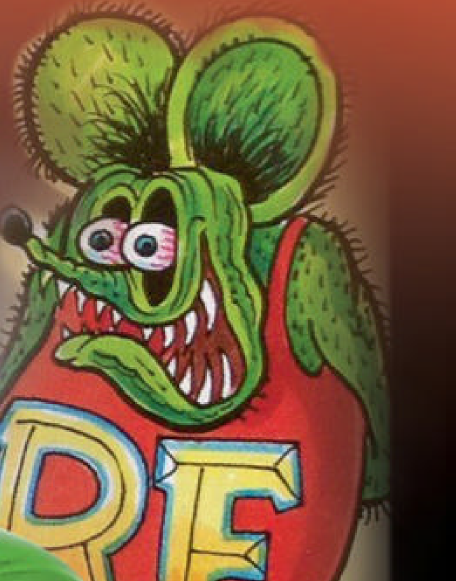

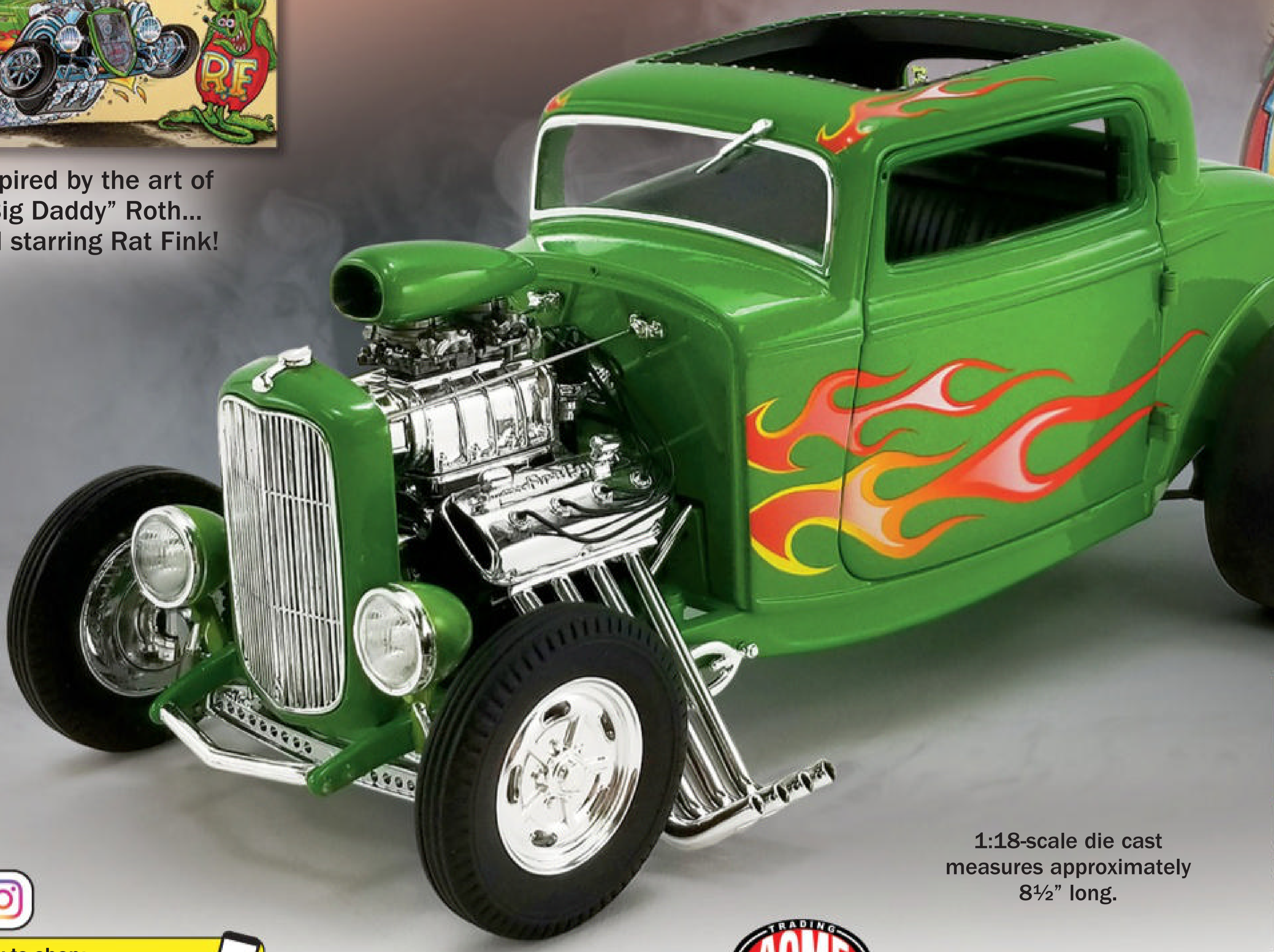

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1.

SHOCK THERAPY

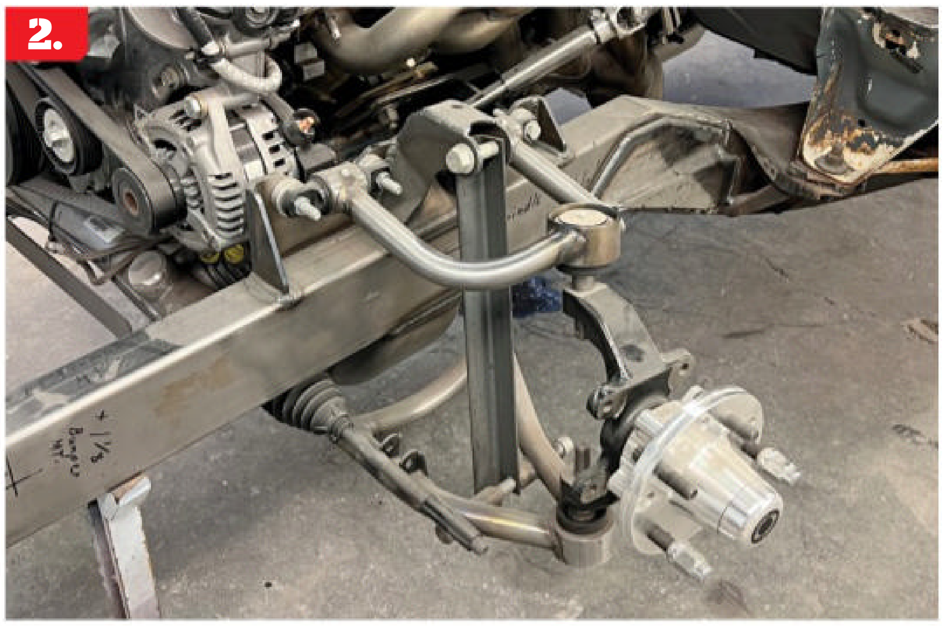
Selecting and Installing Coilovers

BY **RON CERIDONO** PHOTOGRAPHY BY **TATE RADFORD**

Coilover shocks have been around for a long time. It's been so long that several unnamed *Modern Rodding* editors had a full head of hair when they first began to find favor with chassis builders. Initially, coilovers were only found on race cars, but it was our good friend, the late LeRoi "Tex" Smith, who has been credited with first installing them on a street rod. He hung a pair on the rear of his America's Most Beautiful Roadster trophy-winning XR-6 in 1962 and coilovers have been with us ever since.

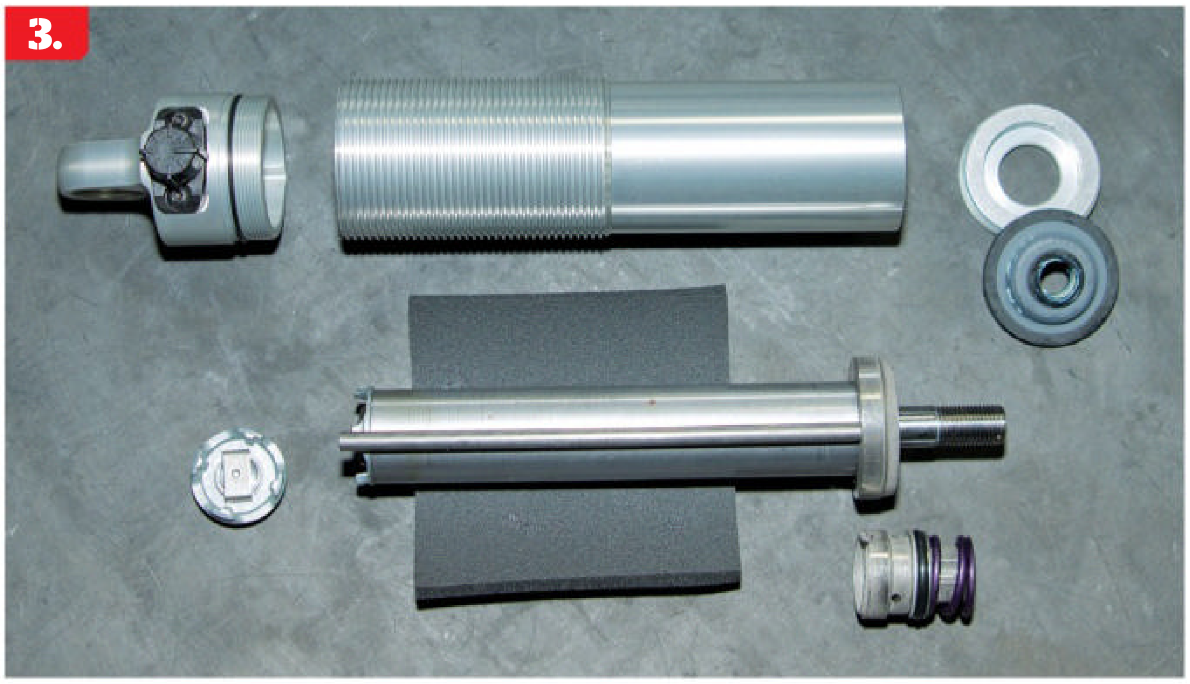
While coilovers have been popular on sports cars and smaller, prewar hot rods, they have also become popular for use on larger, heavier postwar cars, like Colin and Sue Radford's '57 Ford station wagon shown here. And why shouldn't they be? It's simply a matter of selecting the correct combination of shock absorber and spring to make them work as they should, and with help from Strange Engineering (SE) that's what we did.

1. Colin Radford does a test-fit of a pair of Strange Engineering (SE) coilovers on the Art Morrison Enterprises (AME) Bikini Clip on the front of his '57 Ford Del Rio Ranch Wagon.


2.

2. To determine the proper-length shock absorber, the front suspension was positioned at ride height then secured with a simple angle iron strut. It was then simply a matter of measuring for the correct coilover shock.

3.



4.

3. SE coilover shock bodies, eyelets, spring seats, and adjuster nuts are machined from aircraft-quality aluminum. After assembly they are dyno tested at every extension/rebound speed to ensure proper valve seating and durability.

4. SE shocks are rebuildable and may be returned to the company to be re-valved to a different "range" of adjustments.

5. This is a pair of double-adjustable SE coilover shock absorbers. On the top shock the compression adjustment can be seen, on the opposite side of the bottom example is the rebound adjustment.

5.

6.

7.

6. At the bottom of the shocks are the adjustable spring seat and the jam nut. Before installation the threads on the shock body should be coated with an antiseize lubricant.

7. The springs are retained at the top of the shock bodies by a spring seat that slips over the shaft and registers in the upper eyelet. Note the rubber bumpstop *(arrow)* that prevents damage if the shock bottoms out.

For decades SE has been a source for quality driveline and suspension components, including a comprehensive line of coilover shocks. To make selecting the correct coilovers easy Strange offers a chart with all relevant dimensions. For our application the front shocks used are single-adjustable (extension damping only) PN S5205 with the following specifications: extended length 15.40 inches, collapsed length (without the bumpstop) 10.76 inches, recommended ride height of 12.625 to 13.250 inches, and a stroke of 4.64 inches. In the rear, the double-adjustable shocks (extension and compression damping), PN S5007: extended length 19.15 inches, collapsed length (without the bumpstop) 12.64 inches, recommended ride height of 15.25 to 16.00 inches, and a stroke 6.52 inches.

With the shock dimensions determined the next consideration was what springs to use. Strange offers quality Hyperco springs because they are cold wound from heat-treated chrome silicon (SAE 9254) wire. The ends are ground smooth, the springs are thermally stress relieved, and shot peened.

Coilover springs are identified by length, diameter, and spring rate. Length and diameter are determined by the shock absorber body, while spring rate is dependent on several factors, including vehicle weight and the intended use. Spring rate is simple enough; it's the force required to compress the spring 1 inch measured in pounds. Hyperco springs are tested for spring rate, which is then stamped directly on the spring.

There are a variety of methods to determine spring rate, the problem is the requirements vary so greatly depending on the vehicle and its use that it's virtually impossible to make useful spring recommendations. The basic goal is to have the shocks compressed roughly 40 percent with the car stationary, but the best way to determine the spring rate required is to use the program found on hypercoils.com.

To use the spring rate program some basic information will be required. First and foremost is vehicle weight, specifically corner or wheel weight. The most accurate way to determine that is to axle weigh the vehicle. If that's not possible, published overall curb weights are the next best thing, figure 55 percent of the total weight will be on the front, 45 percent on the rear. Divide the axle weight in half and you have the corner weight of the car. The next factor to consider is unsprung weight, which is the weight of the components not supported by the springs, such as the wheels and tires, brake components, half the weight of the control arms, rear axle assembly, and half of the coilovers. A good guesstimate of unsprung weight would be around 150 pounds.

With all the information required, including length of the shocks at ride height, we plugged the numbers into the Hyperco calculator and it indicated 200-pound springs for the rear of the wagon. Keep in mind another consideration when selecting coilover springs is the mounting angle, so changing that angle will have an effect. The greater the installed angle, the stiffer the spring rate must be to support the same weight. A general guideline for reduction in effectiveness is:

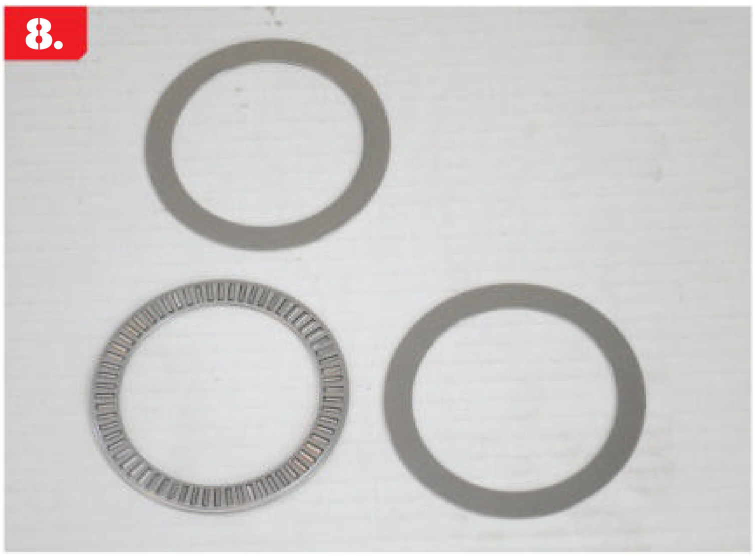
10º	**0.98**
15º	**0.93**
20º	**0.88**
25º	**0.82**
30º	**0.75**

As an example, our 200-pound springs would effectively be reduced to 186 pounds when mounted at a 15-degree angle. In some cases, changing the angle of the rear shocks can be used to "tune" ride quality.

To determine what front springs to use on the '57 the same basic information was required plus what is called the motion ratio. Think of the lower control arms as levers applied to the springs, which means stiffer springs would be required when compared to a solid axle (front or rear)—that's motion ratio. For an independent front suspension, the distance from the control arm pivot point on the subframe (centerline of the bushing) to the point on the control arm directly under the center of the spring or coilover assembly will be required. In addition, distance from the control arm pivot point on the subframe to the centerline of the ball joint will also be necessary. With all the shock angle numbers entered into the Hyperco program we determined 550-pound front springs would be perfect.

When changing the rear suspension from leaf springs to coilovers, some sort of axle locating system is required. Four-bars and four-links position the axle housing in the chassis front to rear. Four-bars are normally parallel and have fixed mounting points (threaded ends allow minor adjustments for wheelbase and pinion angle adjustments) while four-links allow the attachment points of the links to be altered to tune the chassis. Four-links are most commonly used in drag racing to alter how the vehicle launches from the starting line.

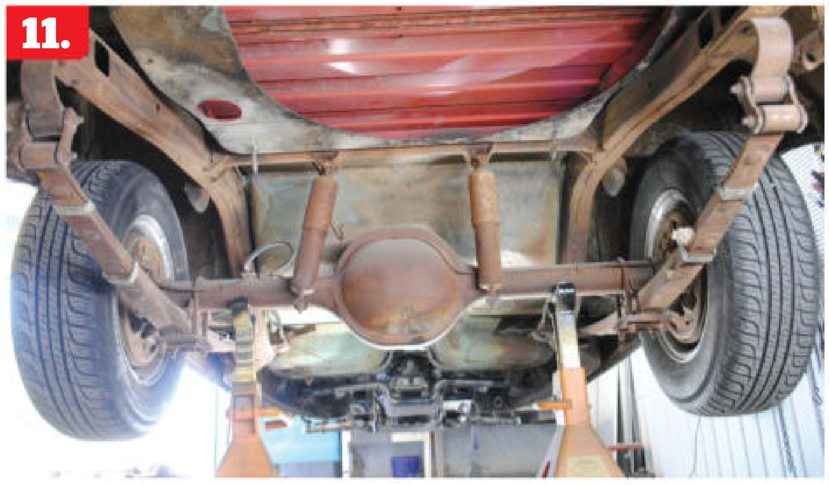
To control sideways movements four-bars and four-links require a lateral locator, such as a Panhard bar or a Watts link. Diagonal locators may also be used, however they are more suited to drag race applications than the street. A variation on the four-bar theme is a triangulated four-bar. Two-bars run parallel with the framerails with two additional bars running at an angle from the axle housing to the frame that locate the housing side to side, eliminating the need for an additional link. Colin elected to use Art Morrison four-bars with a Panhard bar.



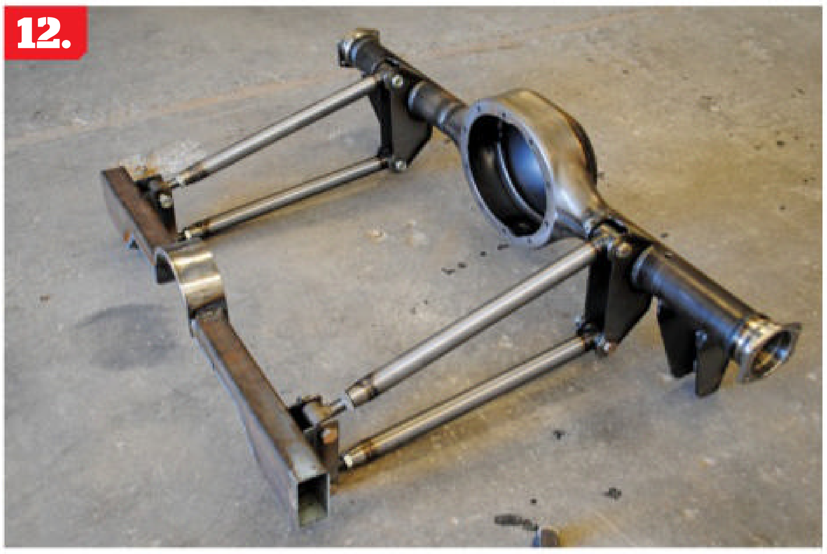
8. Optional spring seat bearings are recommended to ease spring adjustment after the coilovers are installed. SE supplies a special wrench to be used on the adjustment nuts.

9. The spring seat bearings are made up of a top and bottom thrust washer with a bearing assembly in-between. When making spring adjustments the vehicle should be jacked up to reduce the load on the springs and adjusters.

10. Here is the assembled coilover ready for installation. Note both the compression and rebound knobs can be seen and the spring preload is in the middle of the adjuster's travel.

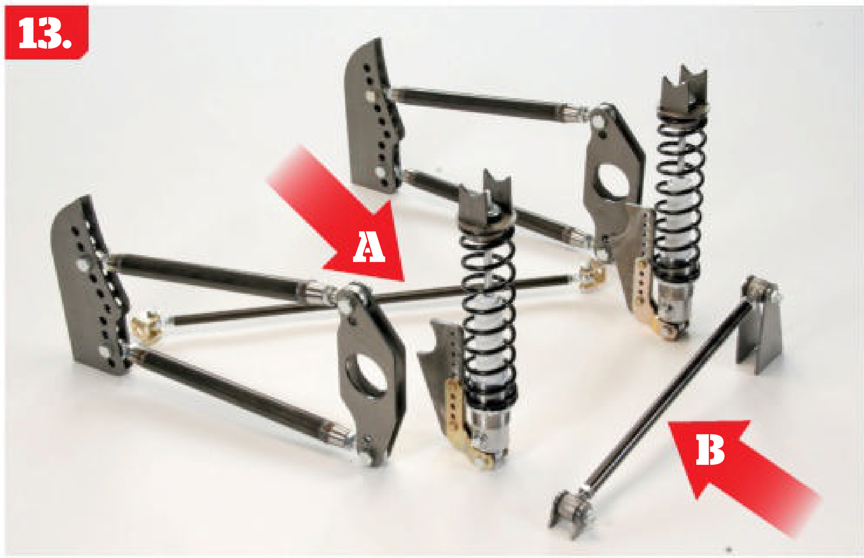


11. The Ford's rear suspension is typical of many '50s and '60s cars, a pair of semi-elliptical leaf springs and tube shocks. The springs not only support the body, they locate the rearend front to back and side to side.



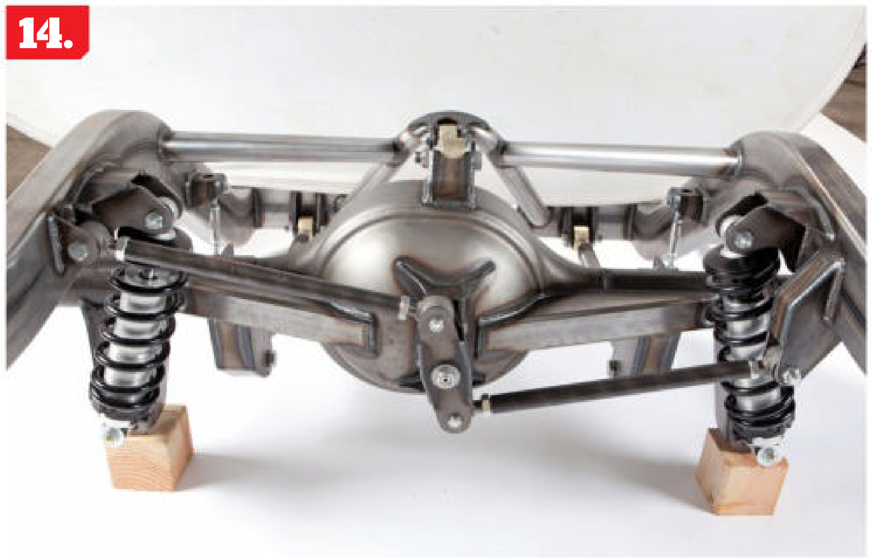
12. In this case the rear suspension was updated with AME four-bars and a new SE 9-inch Ford axle housing. The fronts of the four-bars attach to a new crossmember that was fabricated and installed.

13.



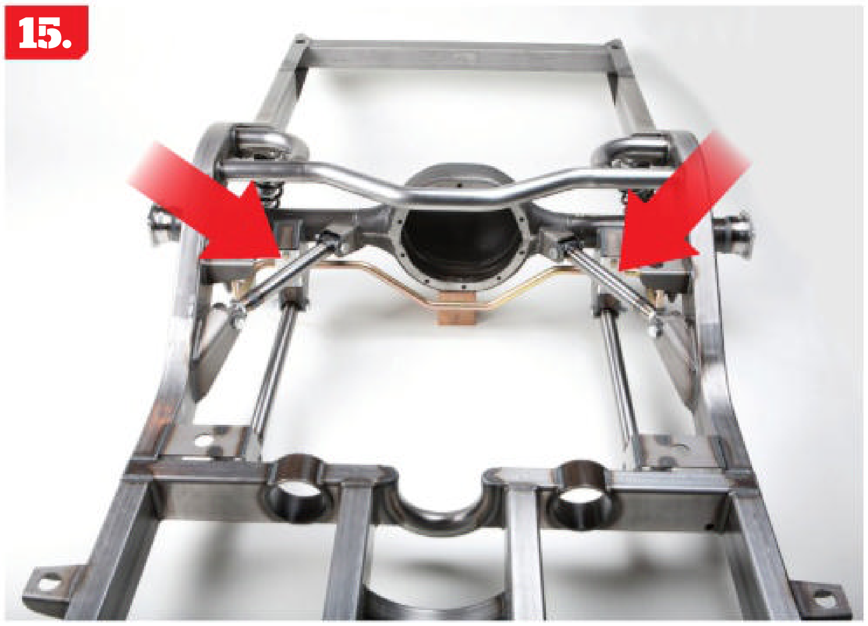
13. Four-bar and four-link (shown) rear suspensions require a lateral locator of some sort. Arrow A is a lateral link, arrow B is a Panhard bar. These examples are from AME.

14.



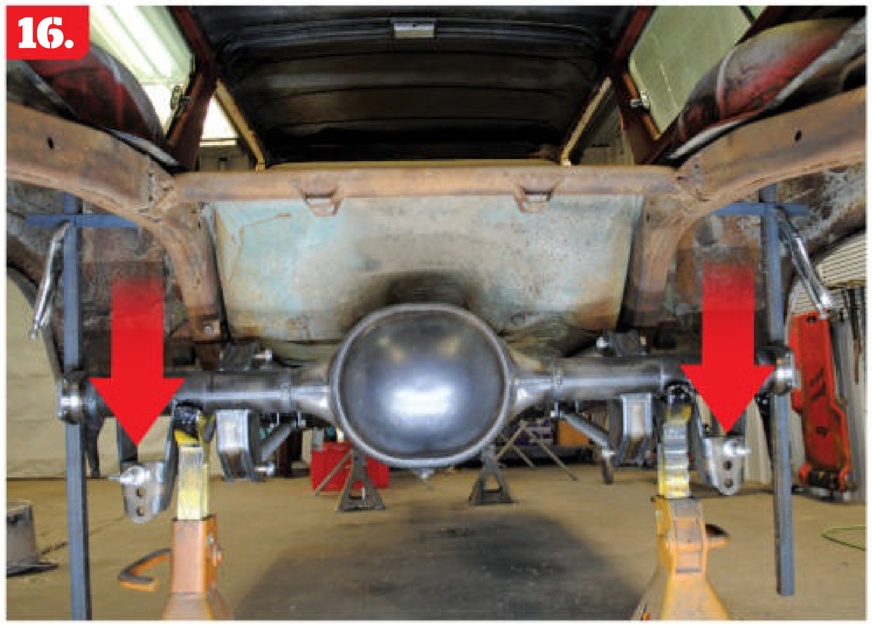
14. A popular method of accurately locating the rearend housing is with an AME Watts link. The "rocker" in the center of the housing is attached by links to each framerail.

15.



15. Another rear suspension option from AME is a triangulated four-bar. The angled upper bars *(arrows)* eliminate the need for any other lateral locator.

16.



16. With the rearend housing centered side to side, centered in the fender openings at the correct ride height relative to the frame it was secured with braces and vise grips. Here the lower coilover mounts on the axle housing with three mounting holes can be seen *(arrows)*.

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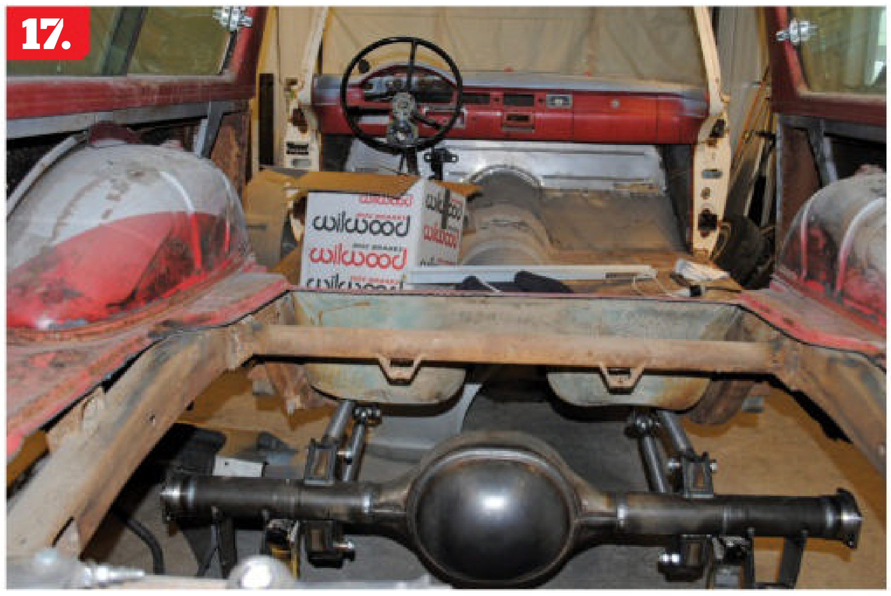


18.

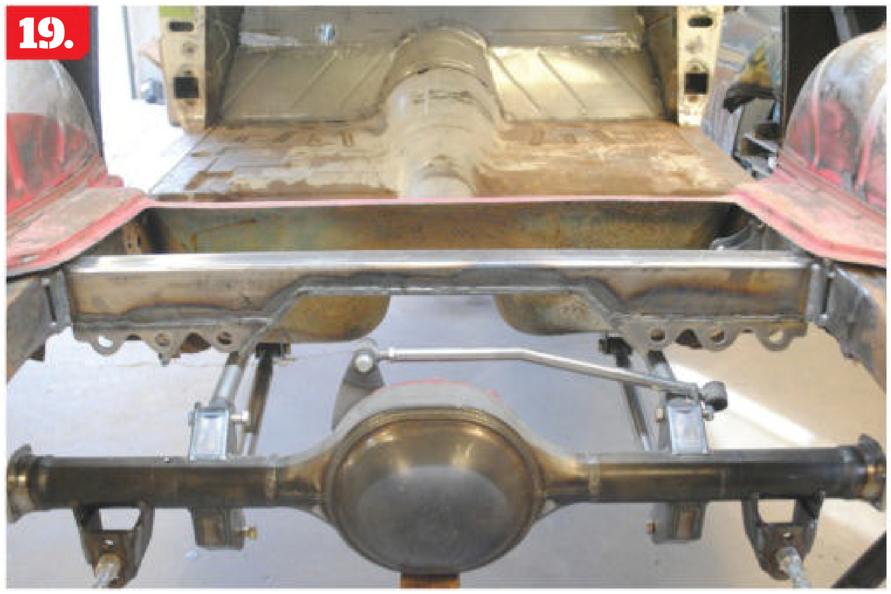
17. The next step was to remove the original crossmember that incorporated the upper shock absorber mounts.

18. With the stock crossmember removed, Colin determined the location for a replacement that the coilovers would attach to.

19. The new crossmember was fabricated from 2x4-inch rectangular tubing. It was notched in the center to provide pinion clearance. At this point the Panhard bar is attached to the axle housing but not the frame.

20. To enable the angle of the coilovers to be adjusted the upper mounts have three locating holes. For mounting options Strange offers high misalignment shock bushings as well as spherical bearings.

19.



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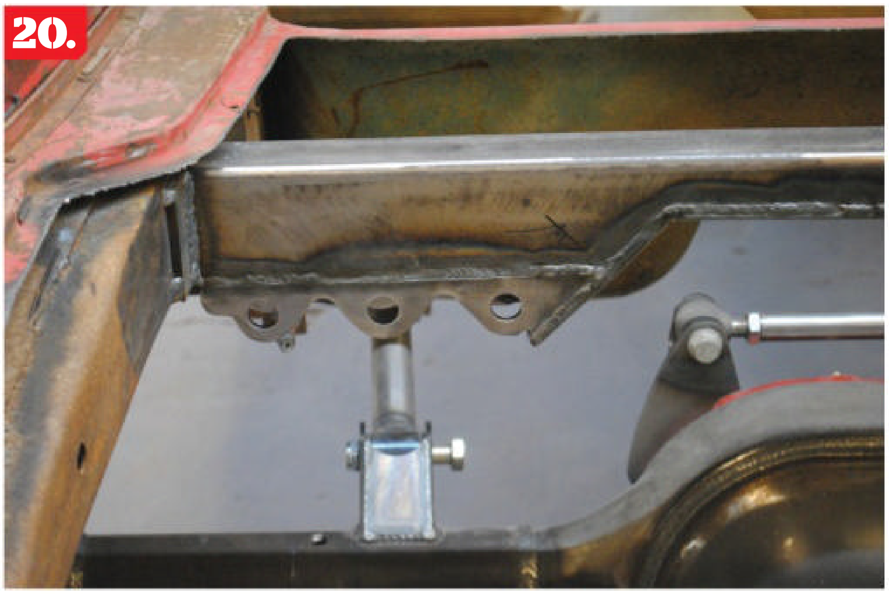

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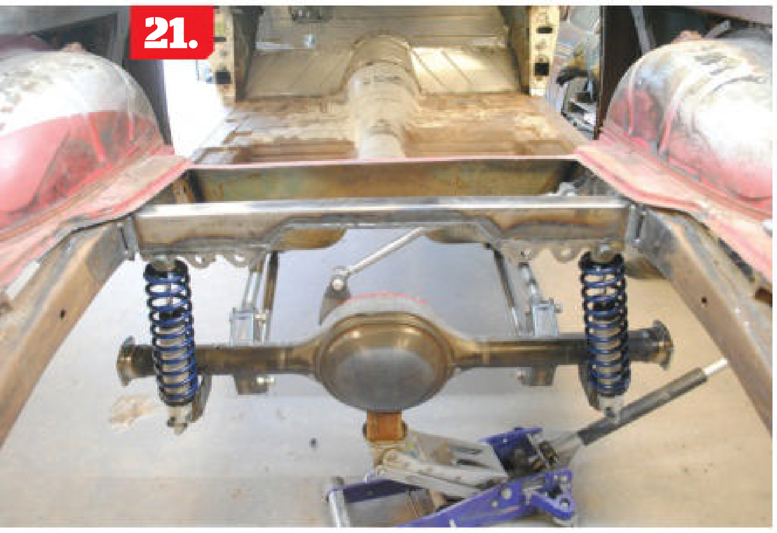

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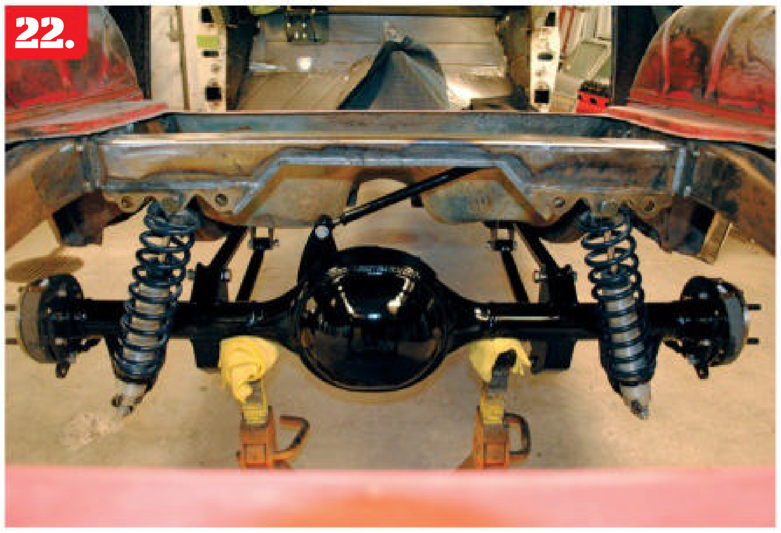

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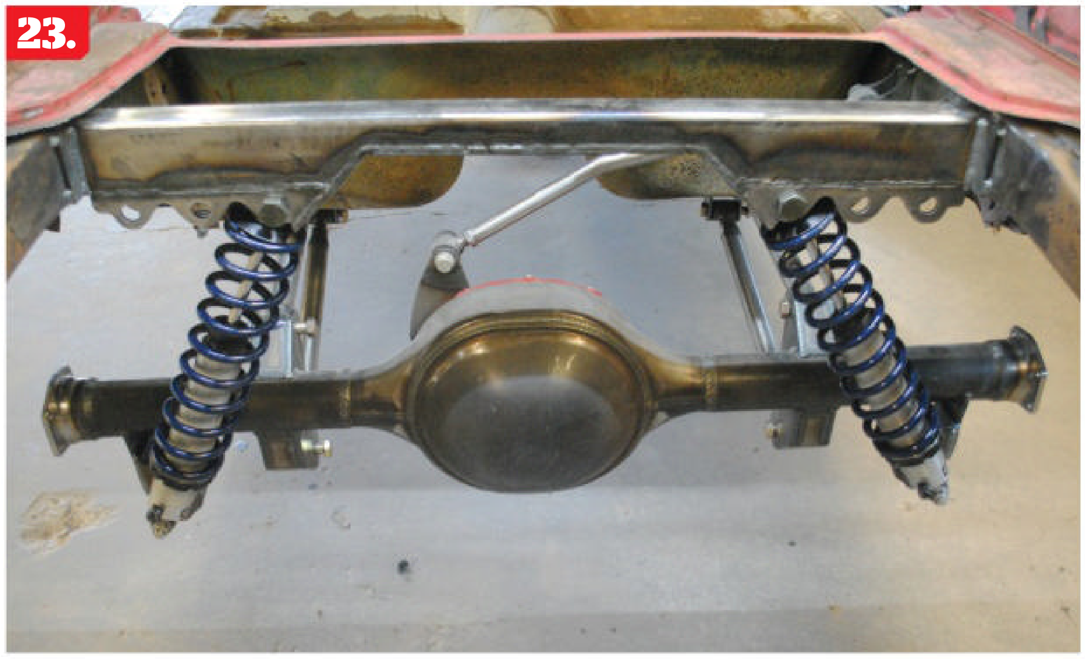

21. With the coilovers mounted vertically the spring rate is simple; the spring rate is 100 percent effective.

22. When the coilover angle is increased the effectiveness of the spring decreases, meaning a stronger spring is required to support the same amount of weight.

23. Increasing the angle of the coilovers may offer some benefits in terms of body roll and it's often done for clearance issues and exhaust system routing.

There are a variety of advantages to using coilovers, not the least of which is they are compact by virtue of combining the shock absorbers and springs. But arguably their biggest benefit is the ability to tune the suspension by simply changing springs, mounting angles, or in the case of adjustable shocks the compression and rebound rates. Simple and effective, coilovers are the best kind of shock therapy. **MR**

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BY **CHUCK VRANAS** ▪ PHOTOGRAPHY & VIDEOGRAPHY BY **THE AUTHOR**

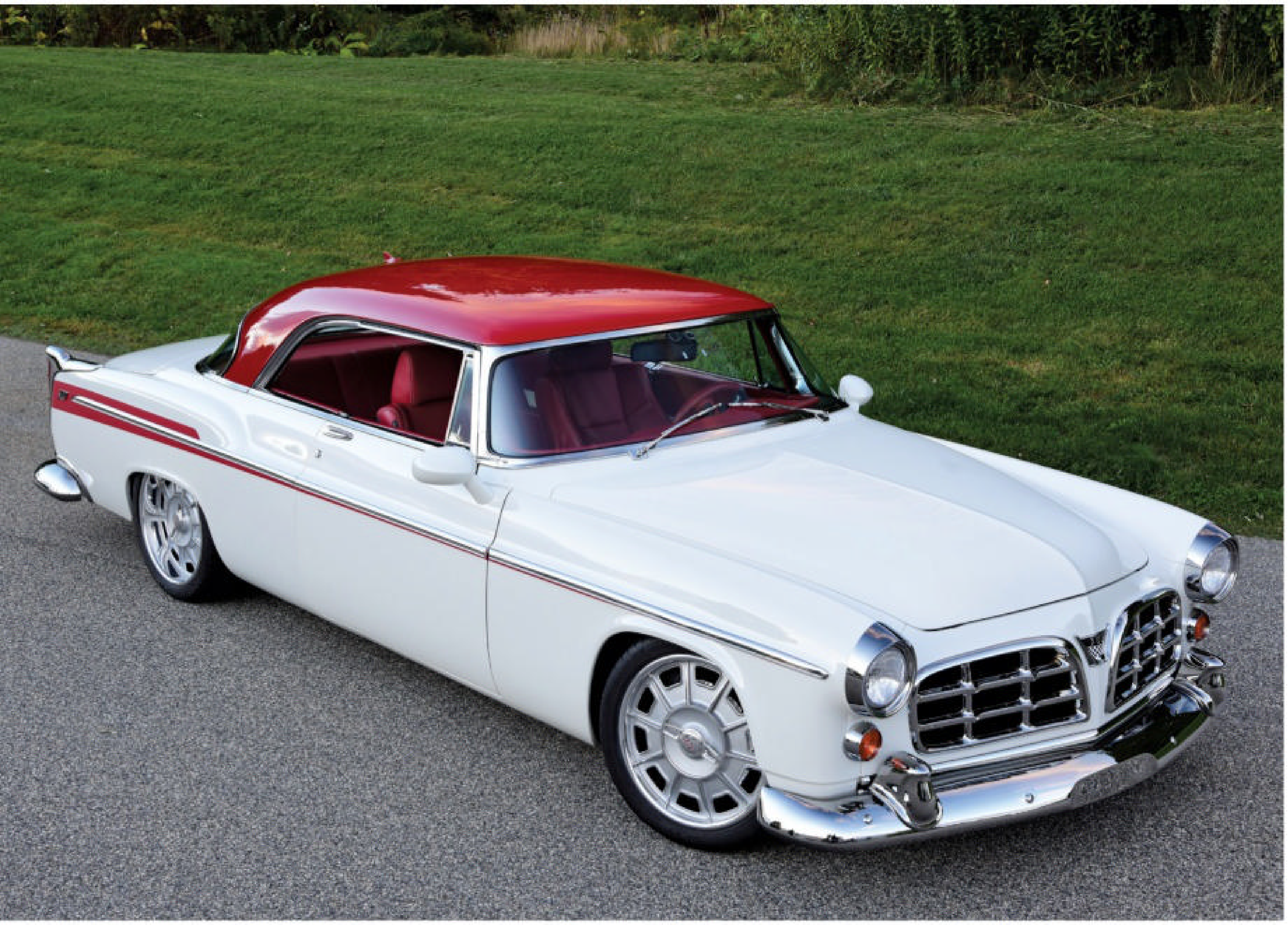
HELLCAT300

PAUL WHITE'S '55 CHRYSLER C-300 FUSES GENERATIONS

When it comes time to fusing elegance and performance together in a well-planned package nothing gets you to the head of the class faster than imagining the union of a classic '50s-era cruiser with all the technological benefits of a new-generation muscle car. The alluring '55 Chrysler C-300 showcased across our pages belonging to Paul White Sr. of Portland, Maine, stays true to its marque with the blending of an '18 Dodge Challenger Hellcat to its vintage heritage. Far more involved than your standard platform change, it required the build team to up the ante with reengineering the Hellcat platform to mate to the C-300 as well as integrate all its driveline, electronics, and interior components into the car.

Looking back, designer Virgil Exner was given the reigns to refresh the '55 Chrysler lineup with his exclusive longer, lower, and leaner designs, coined by Chrysler as the "Forward Look" and advertised as "The $100 Million Look" when the models debuted. These elements, along with the new FirePower Hemi V-8 were the ultimate combination to generate excitement on the street and success at the racetrack. Having been involved in the hot rod and custom car scene since the '60s, Paul has built and owned enough Detroit steel to fill a warehouse. Over the last two decades, he's followed a passion for matching modern unibody platforms with classic elegance, evidenced by many builds, including a '55 Chevy Nomad, '57 Bel Air, and a '56 Chrysler Imperial. It's a formula that's worked extremely well for him and while all the prior combinations were perfectly balanced, he wanted to bring something new to the table while focusing on one of his favorite designs.

Since the '55 Chrysler C-300 was heralded as the very first muscle car thanks to its dual-quad, 331ci FirePower Hemi V-8 boasting 300 hp with a top speed of 130 mph, Paul felt it only proper to bring it to the next level after seeing specs for the '18 Challenger Hellcat with its tire-melting 707hp 6.2L supercharged Hemi and a top speed close to 200 mph. Locating a donor car for the build proved no small feat, especially since there were only a limited number (1,725 to be exact) of C-300 cars built. He was able to finally source an older restoration in solid shape to act as the base for the new build and wasted no time swapping cash for keys. The car was then delivered to Back Bay Customs where he and shop manager Adam Clayman, both co-owners, laid out the plans for the swap. Long known for their intricate custom fabrication skills, the team began preparations for the undertaking.



The exact fitment of the Hellcat platform to the C-300 was the most crucial element in melding the two cars together. With the C-300 having a wheelbase of 126 inches compared to the Hellcat at 116.2 inches, plenty of reengineering and fabrication would be needed. Once both bodies were separated from their respective platforms the team got busy, beginning with the unibody stretch of the Hellcat. Starting with crafting extended structural 'rails and forming sheetmetal panels between the Hellcat unibody and the C-300 body shell, they followed by extending the floor behind the front seats 9.9 inches to accommodate the new wheelbase and driving position. The front wheel arch locations were then modified to accommodate the Hellcat wheel position as well as extending the Hellcat trunk floor to meet that of the C-300. Under the hood, the team fabricated a custom radiator support to cradle the Hellcat heat exchangers and create mounting points for the front fenders and hood latch mounting plates as well as fabricating a panel fusing the Hellcat firewall to the cowl of the C-300.

With the platform installation completed, the new cutting-edge suspension starts out back with a differential packing 2.62 gears with asymmetric limited slip suspended in place by a five-link IRS with coil springs, link-type 22mm solid stabilizer bar, and gas-charged Bilstein shocks with SRT-tuned (three-mode for street, sport, and track) adaptive dampening suspension (ADS), all wrapped in an isolated suspension cradle. Up front, a short-long arm (SLA) IFS with high upper A-arms features coil springs over gas-charged Bilstein shocks with SRT-tuned (three-mode for street, sport, and track) adaptive dampening suspension (ADS) along with a 34mm solid stabilizer bar with lateral and diagonal lower links. It all meets an electric power steering (EPS) system with multi-mode assist and rack-and-pinion steering with hydraulic power-assist. If you're pushing serious horsepower you'd better have the brakes to back it up. The SRT Brembo high-performance braking system features massive 15.4-inch front slotted-and-vented two-piece rotors with six-piston Brembo calipers with matching 13.8-inch two-piece rotors and four-piston calipers out back combined with four-wheel antilock brakes (ABS) and four-mode electronic stability control (ESC) for traction control. For plenty of timeless style, a set of Schott C10 model wheels, sized 20x9 at each corner, wear Michelin Pilot Super Sport rubber, sized P255/40ZR20 for maximum grip.

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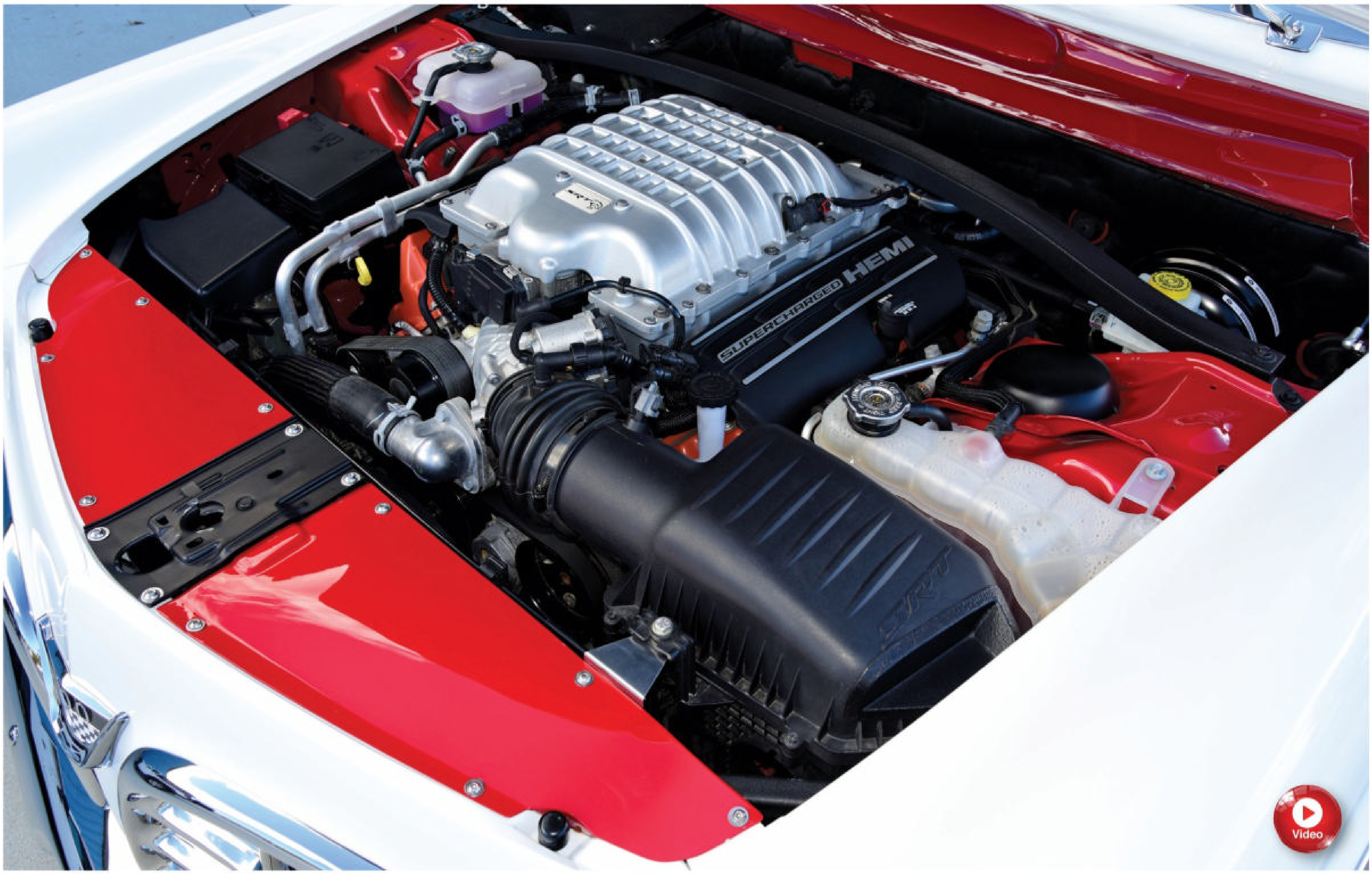

Underhood you'll find plenty of fire and brimstone thanks to the Hellcat's 6.2L supercharged Gen III Hemi V-8. Starting with a deep-skirt, cast-iron block with four-bolt, cross-bolted main caps, it's filled with a forged steel crank linked to forged 4340 H-beam rods topped with forged aluminum pistons getting bumped by a hydraulic nodular iron cam. Up top, a set of T356 aluminum, twin-plug, Hemispherical chamber heads make endless power, especially when matched to an IHI twin-screw 2.4L supercharger with a 92mm throttle body and sequential multi-port injection delivering the knockout punch. The factory, free-flowing, stainless exhaust was extended by the team to meet the C-300 specs while also adding a pair of MagnaFlow mufflers for a wicked tone. Matched to a TorqueFlite 8HP90 eight-speed automatic trans pushing the goods through a custom driveshaft, it's all good for a searing 707 hp to the rear wheels.

As with any older restoration, it was obvious the body would need to be blasted clean to reveal any attention needed to the vintage steel panels. After evaluating the playing field, the team fabricated all needed replacement panels, including lower quarters, rockers, and fenders. They followed by completely metal finishing the body while also setting all the gaps, preparing it for a custom coating of Spies Hecker brilliant white and red vibe. Outside, the rear bumper was notched to accommodate the custom-fabricated exhaust tips to add a bit of flair. Finally, nothing adds allure like plenty of fresh shiny bits, thanks to Paul's Chrome Plating and Stan Stevens, who repaired and polished all the stainless trim.

Bringing the Hellcat's business office to the party was no small feat, especially when retrofitting it to the large cabin of the C-300. The team started with the factory dash, which was cut, modified, and re-formed to fit while also creating a custom dash top molded from polyurethane foam and wrapped to match for maintaining the look. Factory instruments monitor the vitals, including the in-dash tach and 200-mph speedometer while a tilt/telescopic column mounts the leather-wrapped SRT Performance steering wheel complete with speed control and paddle shifters. The full-length center console along with the floor shift and factory accessories was then fitted to perfection. From there plenty of interior magic followed with the team from Gangon Upholstery installing the factory six-way power, heated and ventilated red leather buckets, complemented by the matching rear seating along with custom-wrapped side panels, headliner, and plush black carpeting. Finally, the body control module re-flashed by Stephen White to dial it all into the reworked factory wiring harness by Back Bay.

Getting the Hellcat 300 to the street was truly a group effort by the team at Back Bay Customs, including Adam Clayman, Jon Chase, Dylan Pelletier, Dylan Lee, Matt Harmon, Coti Sanders, and Sean Hamlin. All we can say is this original muscle car is revitalized with cutting-edge performance, making it a standout by fusing the best of both generations. **MR**

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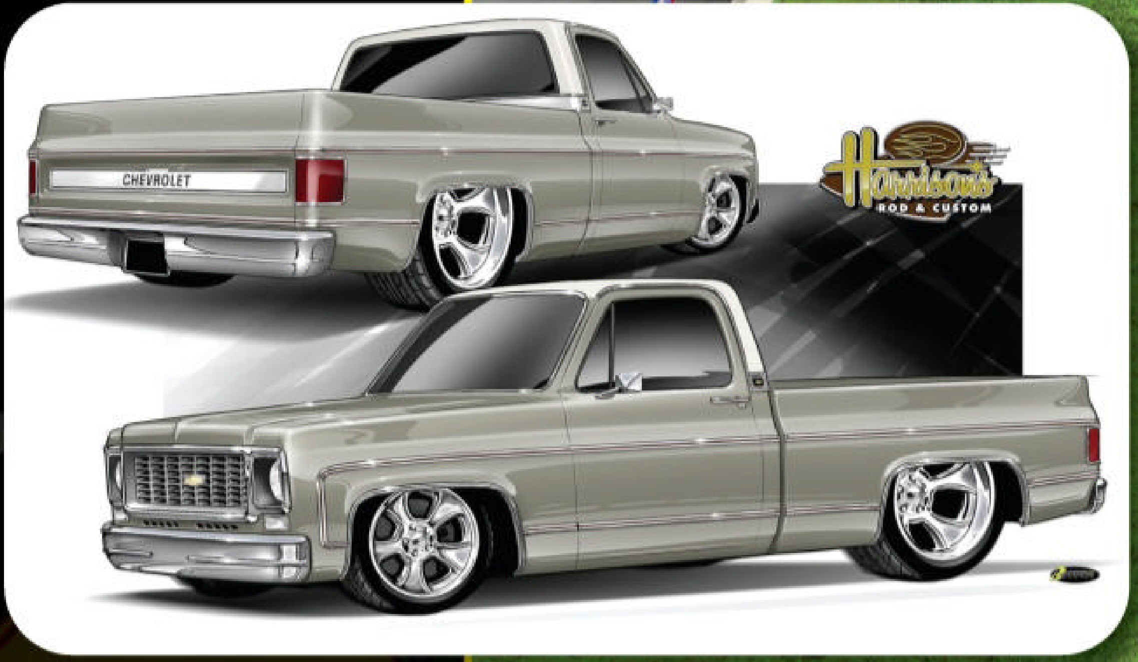

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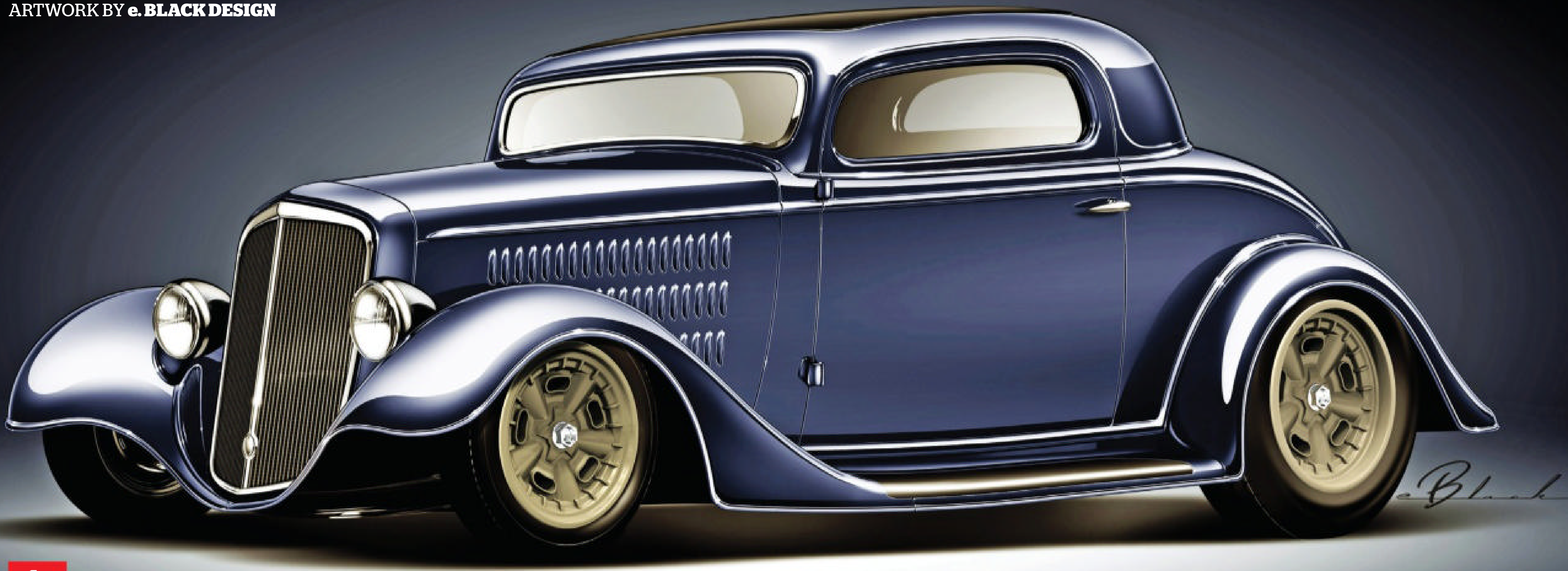

1.

1. The finished look is getting closer to reality. Thanks to Eric Black of e. Black Design we have a good idea of what our finished goal will look like.

THE DEVIL IS IN THE DETAIL

Part 3: The Ultimate '35 Chevy Coupe

As work nears completion on Greg Heinrich's cutting-edge '35 Chevrolet coupe, we wanted to show how some of the outstanding details were handled. (In previous months, *Modern Rodding* has brought you chassis and sheetmetal work.) Ironworks Speed & Kustom has made a commitment to use the latest technology to design and build these parts. In most cases, the portion of the car where the parts will fit is scanned, so when the parts are designed in CAD they will fit precisely. Once the CAD model is completed, a plastic part is printed and then this part is checked for fit and appearance before machining the final part from billet aluminum. Opportunities for improvement often become apparent after the printed part is made, and frequently parts go through several revisions before the design is finalized.

Innumerable details were fabricated using this procedure, and the combined effect is stunning. Our photos show the bucket seats, articulated hood vent doors, running boards and their mounting brackets, the rear underbody valence panel, the hood top bracing, front inner fender panel, and the dashboard, but this is just the tip of the iceberg. Some other components made in this way are the firewall, transmission tunnel, bellhousing cover and toeboards, the pedal assembly, the hinged windshield frame, and the inner bezels for all the windows. We could go on, but you get the idea that no expense was spared to bring the styling, fit, and finish on this car to an extreme level.

Manufacturing parts in this way brings a new level of precision to the building process, and when you look at the deeply sculped louvers on the front inner fender panels and the rear valence panel you can imagine how challenging it would be to fabricate these parts from sheetmetal. The process worked so well that many of the original Chevrolet parts were replaced by parts machined from billet, too. **MR**

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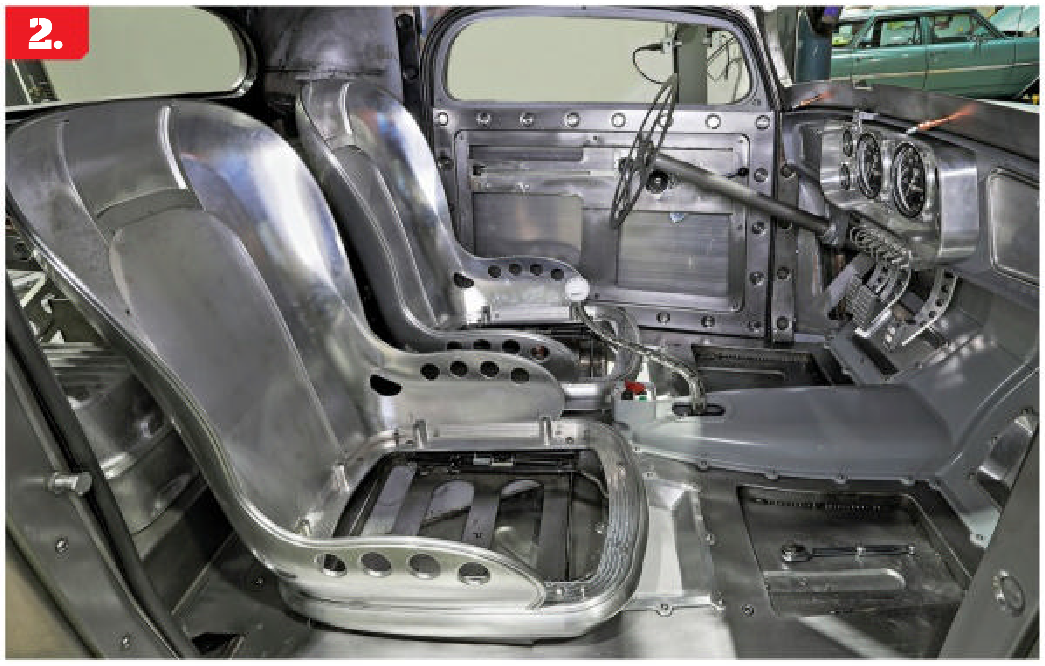

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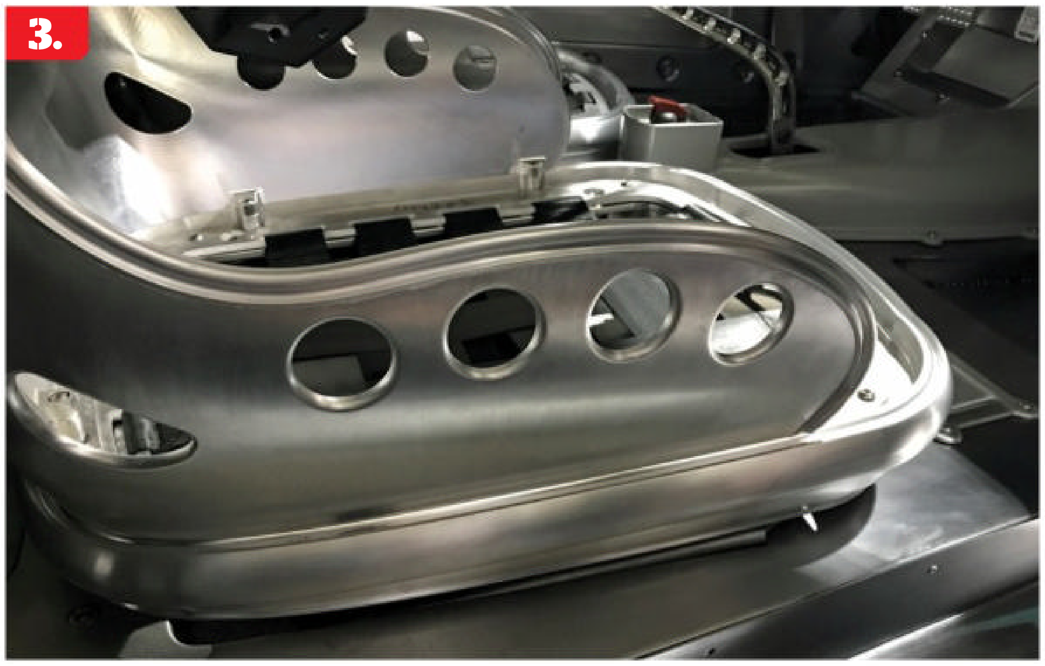

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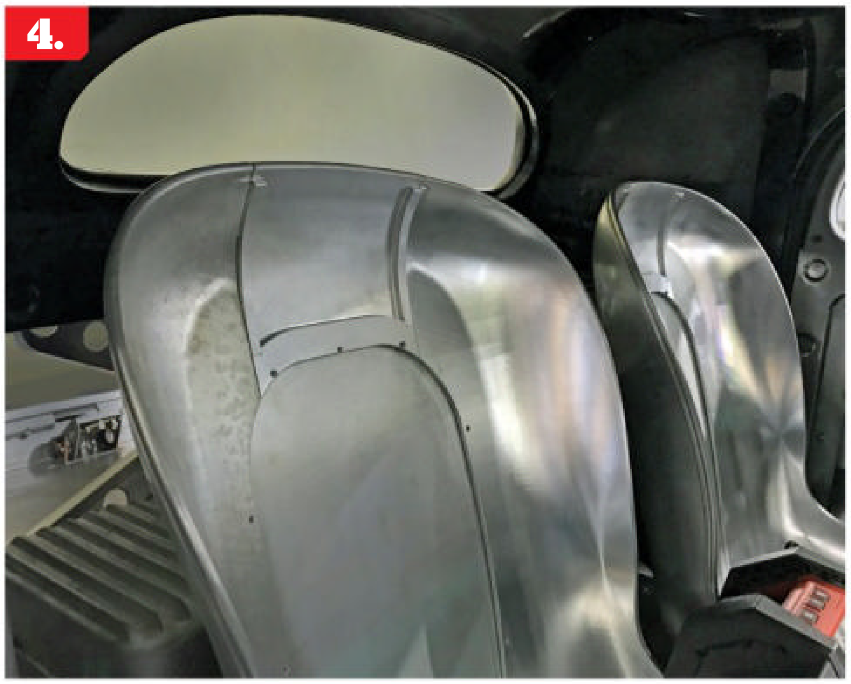

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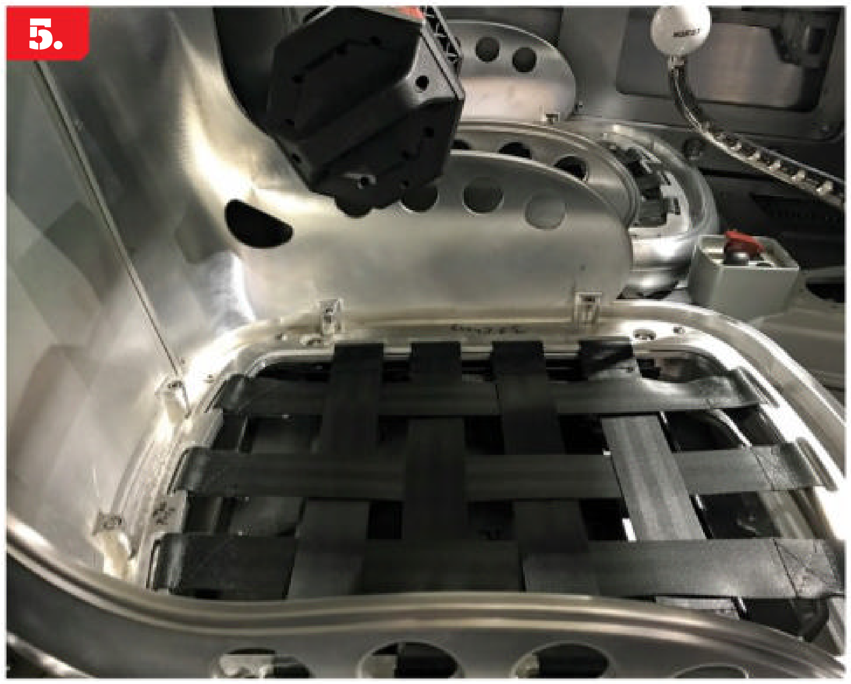


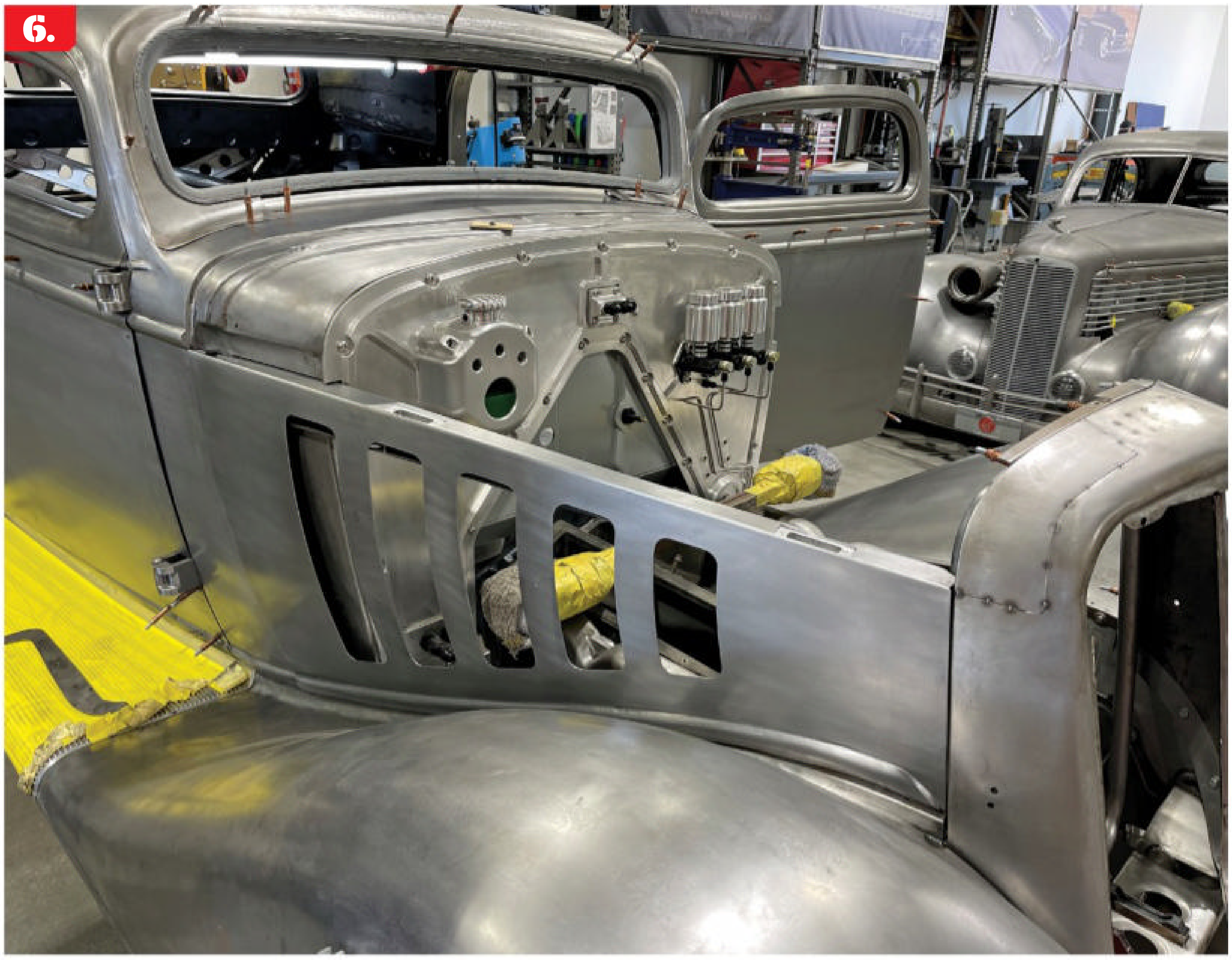
2. Most of what you see in this photo was designed in CAD, checked by printing a plastic part, tweaked as needed, and then CNC machined from billet aluminum.

3. In this close-up shot of the seat frame you can see the superb quality of finish achieved by precision machining.

4. The inner portions of the seat frames will be covered with foam and upholstery, but even these hidden areas are beautifully finished.

5. Webbing is placed under the foam cushion in the seat bottom for OEM-style comfort.

6.



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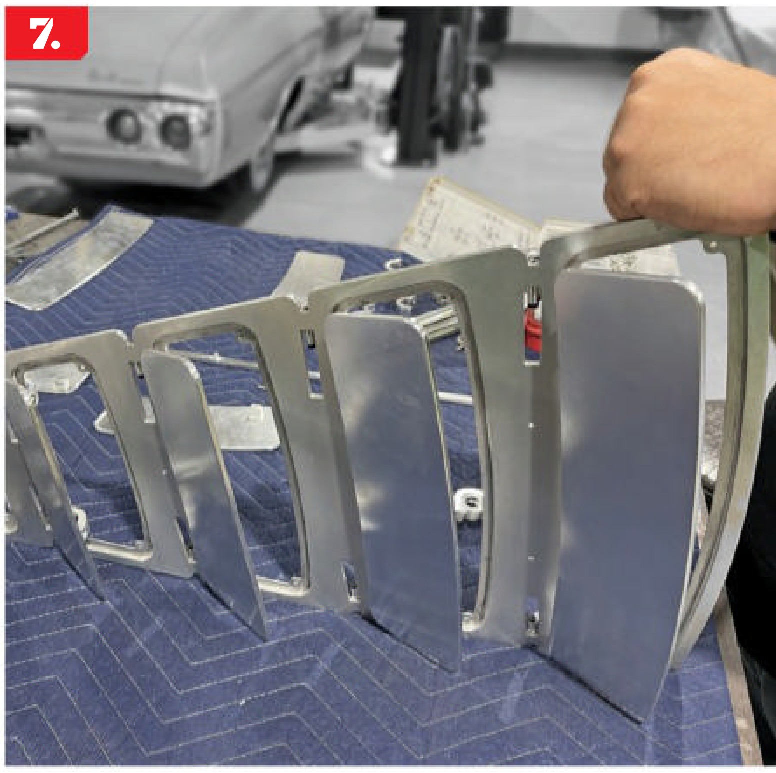
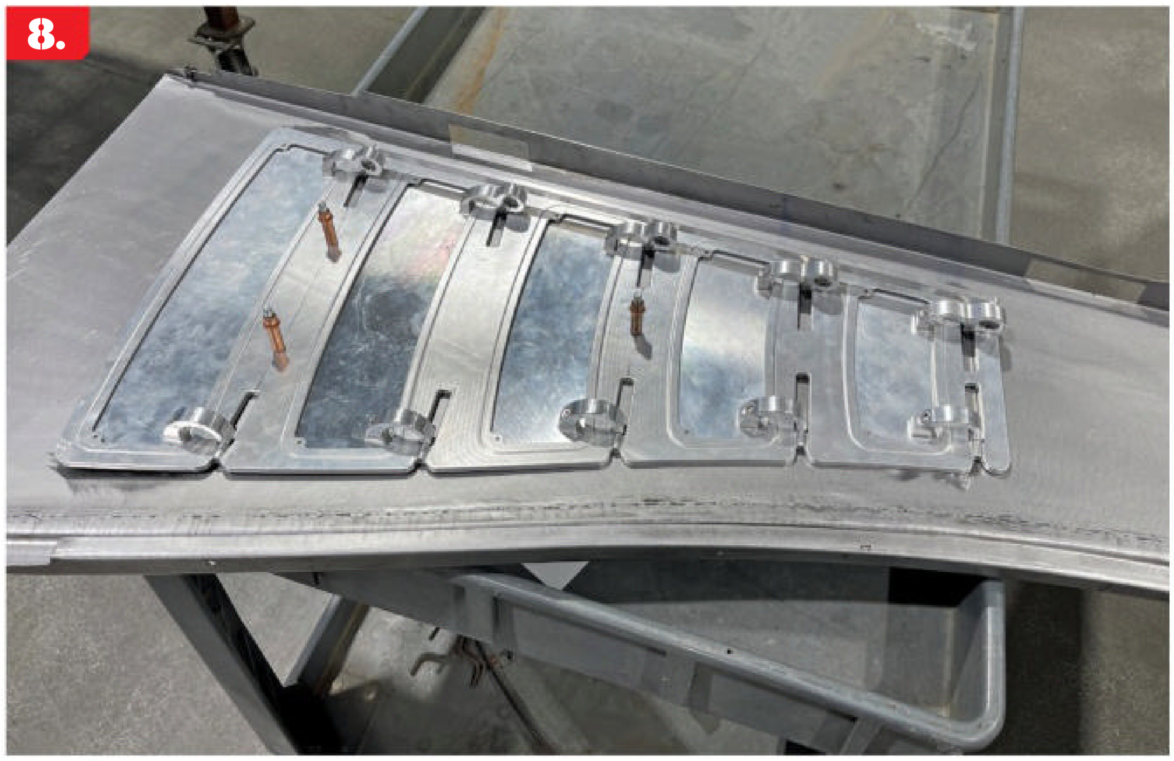


6. The entire firewall is machined from billet. Notice the openings cut in the hood side, in preparation for fitting the precisely contoured vent doors.

7. The hood vent door assembly is shown here in preparation for being bonded to the steel hood side.

8.



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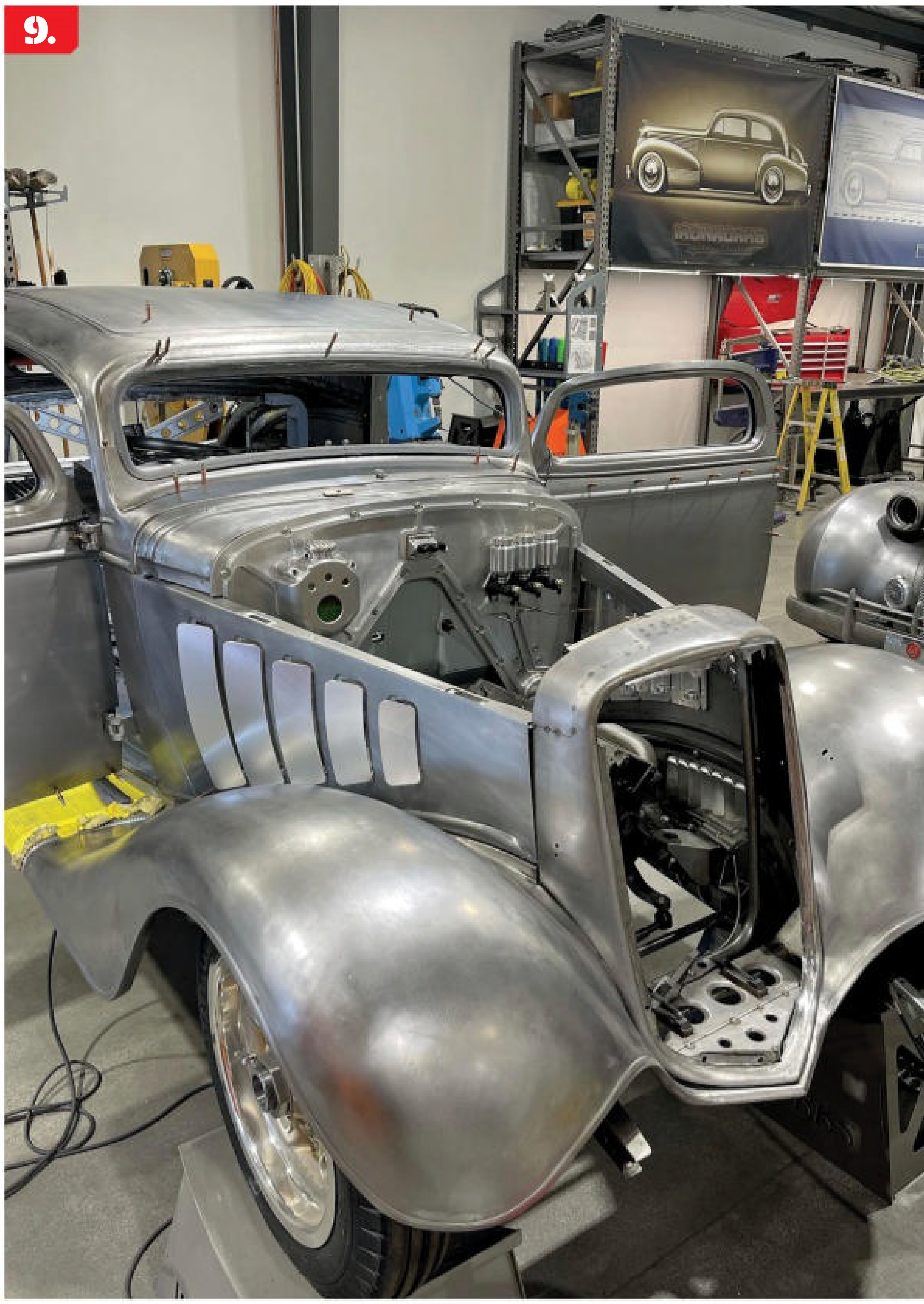

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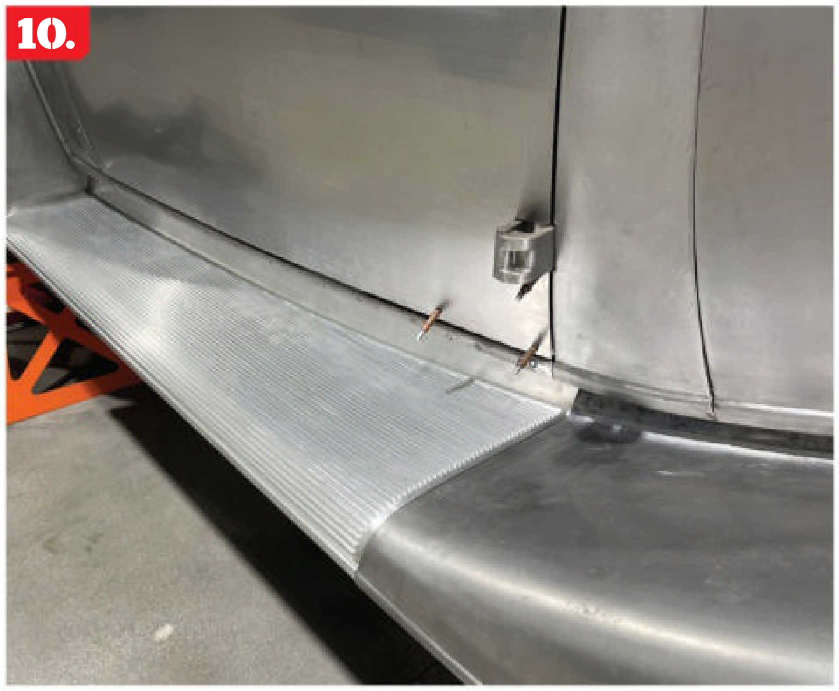
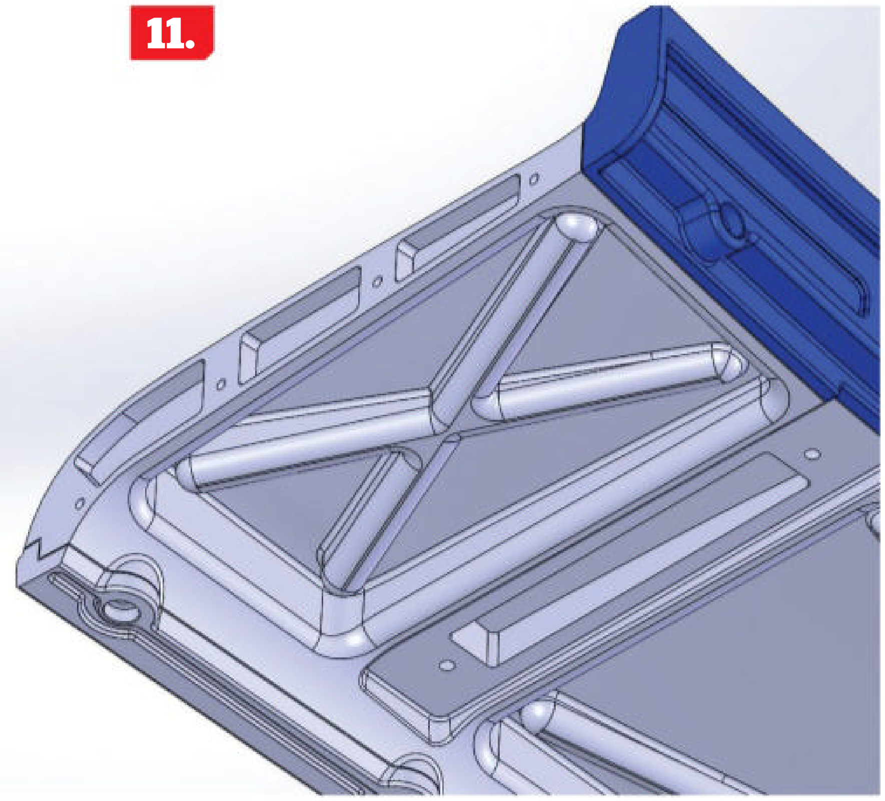


8. Here you can see how perfectly the machined aluminum components follow the contours of the hood side and the intricacy of the hinges and brackets for the linkage that moves all the doors in unison.

9. Here's the completed hood side with the vent doors in place.

10. The beautiful running boards are machined from billet aluminum, too. Note how perfectly they follow the shape of the body and the fenders.

11.



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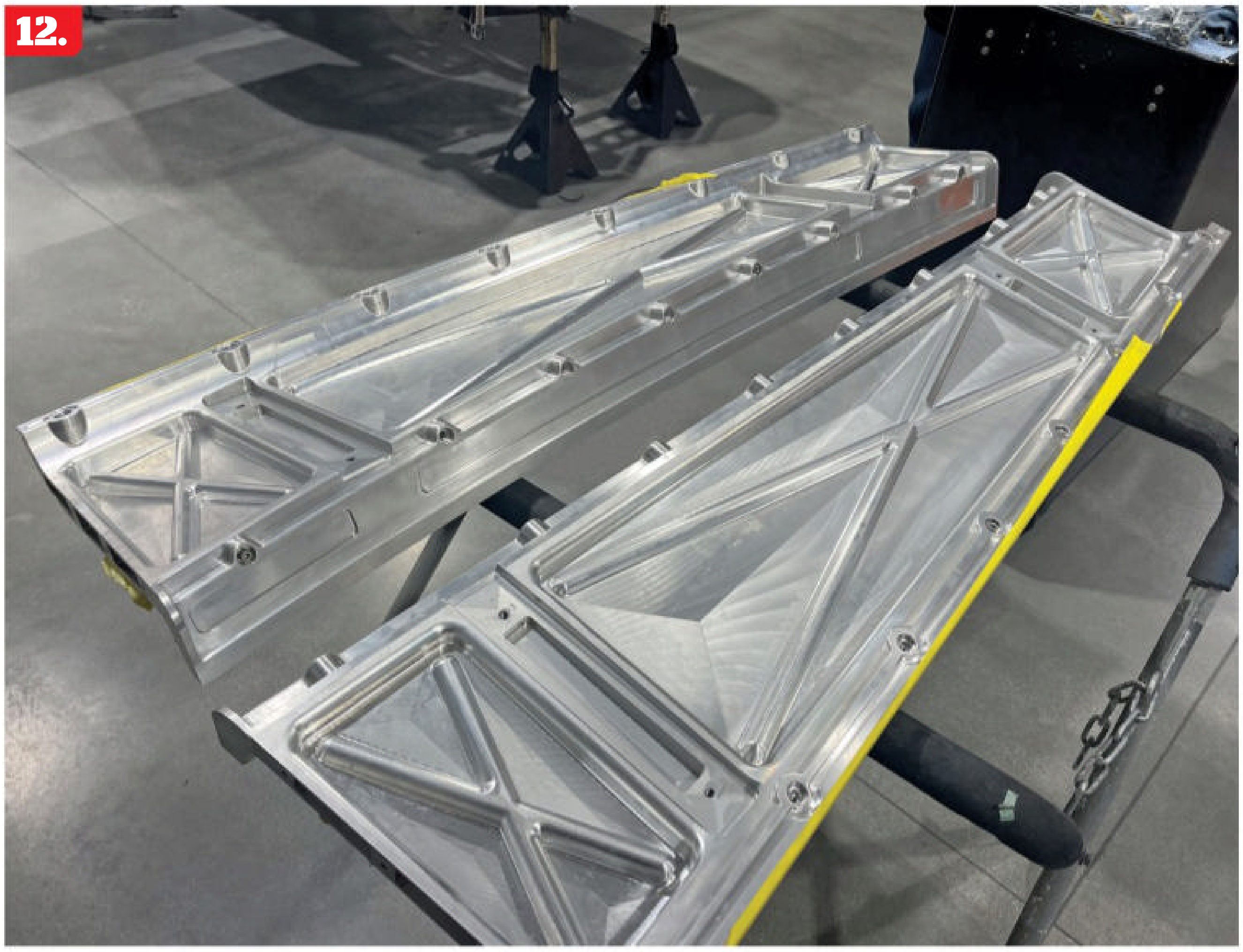

11. This CAD drawing shows the individual components the running boards are constructed from.

12. The underside of the running boards is finished just as beautifully as the top.

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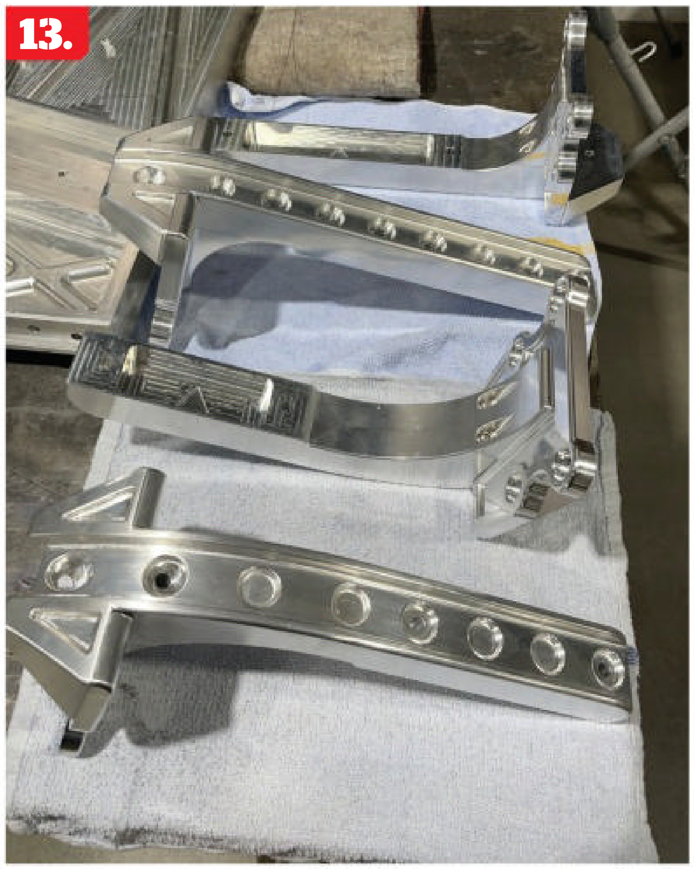
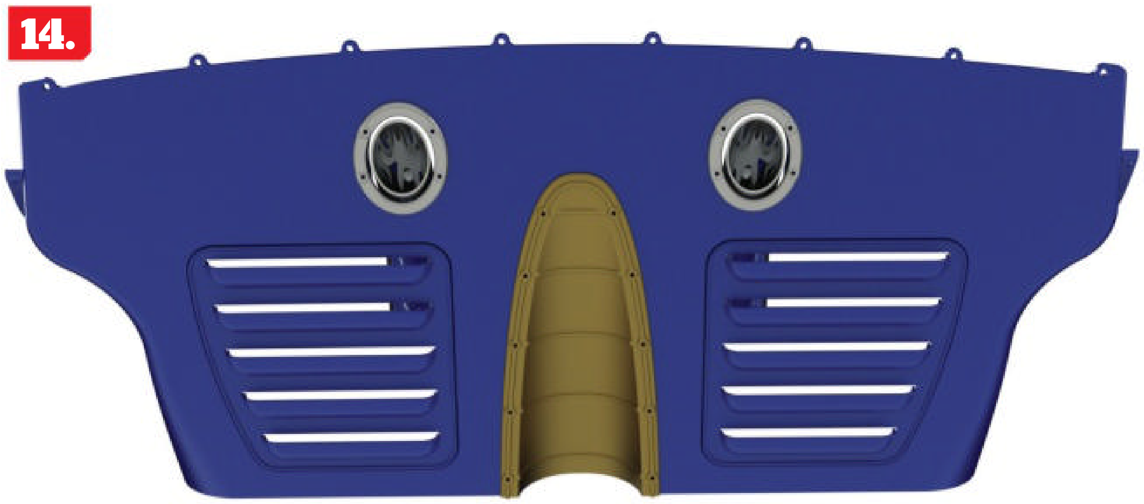


13. These are the brackets for the running boards, which mount them securely to the chassis.

14. This is a preliminary CAD drawing for the valance panel that fits under the tail of the body.

15. You can see here how the individual components of the valance panel are fitted together.

14.



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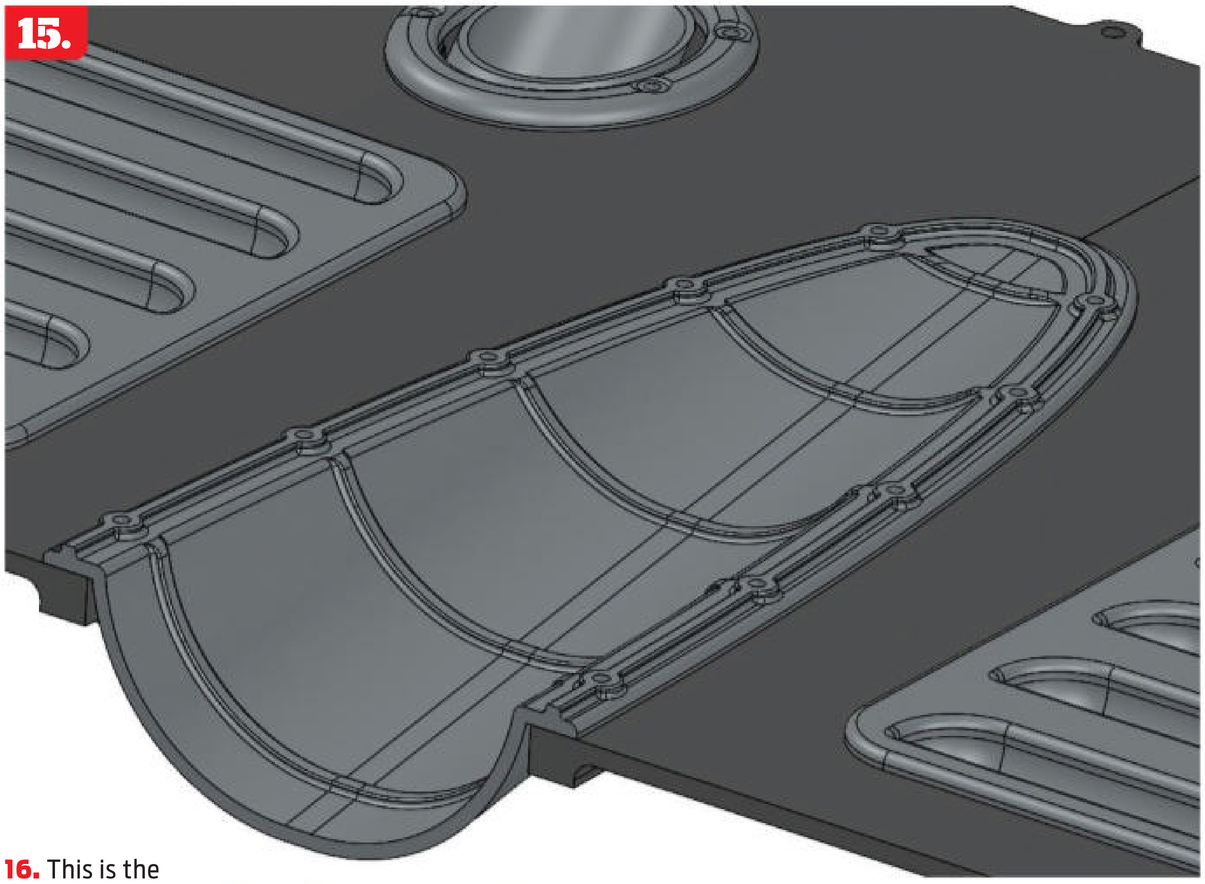

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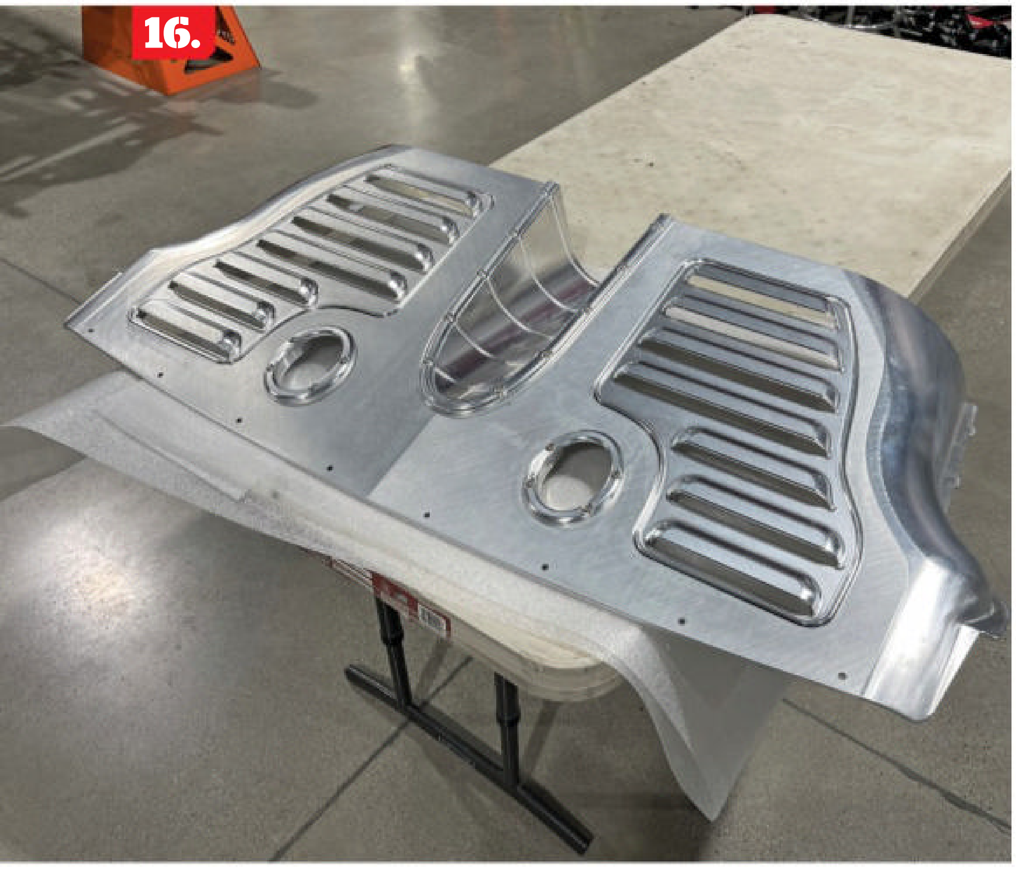
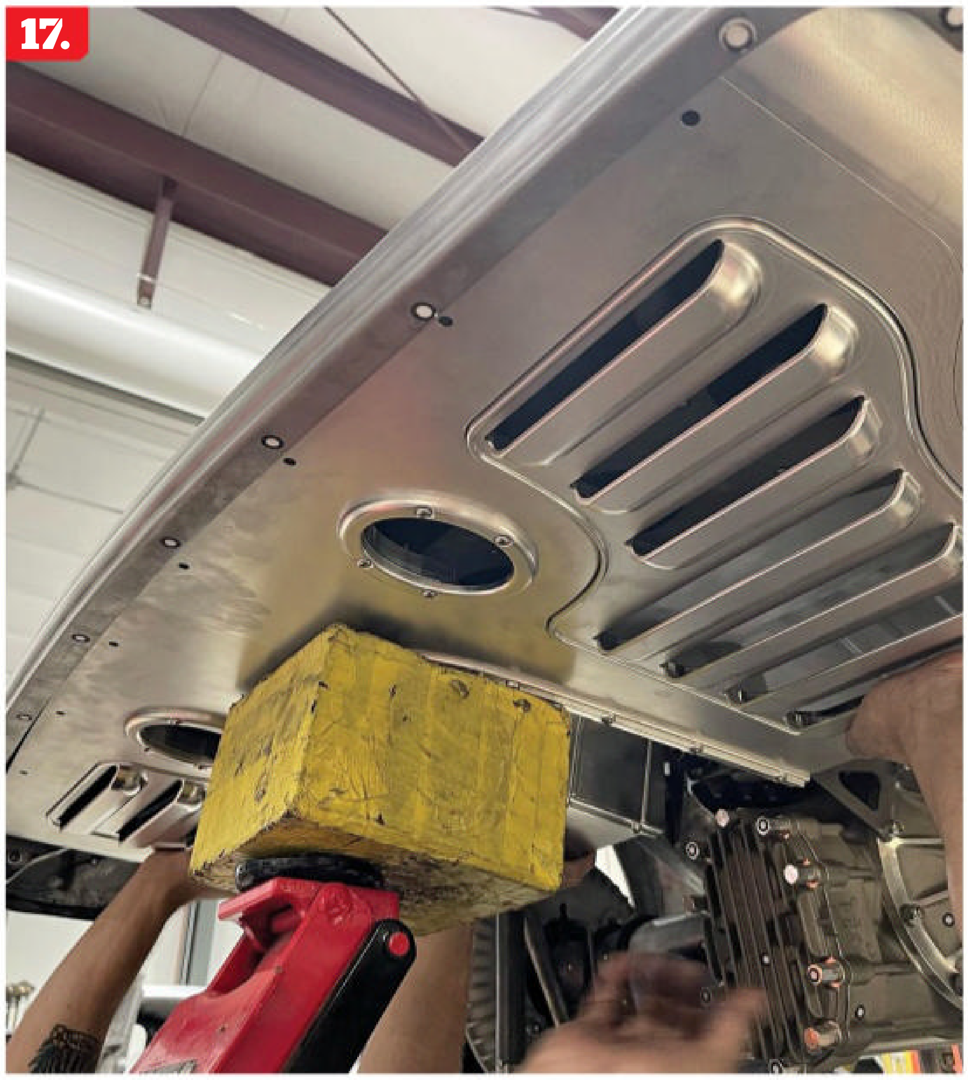


16. This is the completed rear valence panel, resting upside down on a bench. Shapes this intricate would be extremely challenging to make from sheetmetal.

17. The valence panel is being fitted into place here. As you can see, it will fit like a glove since the body was precisely scanned before the part was designed.

18. This is the rough layout of the robust bracing for the hood top.

17.



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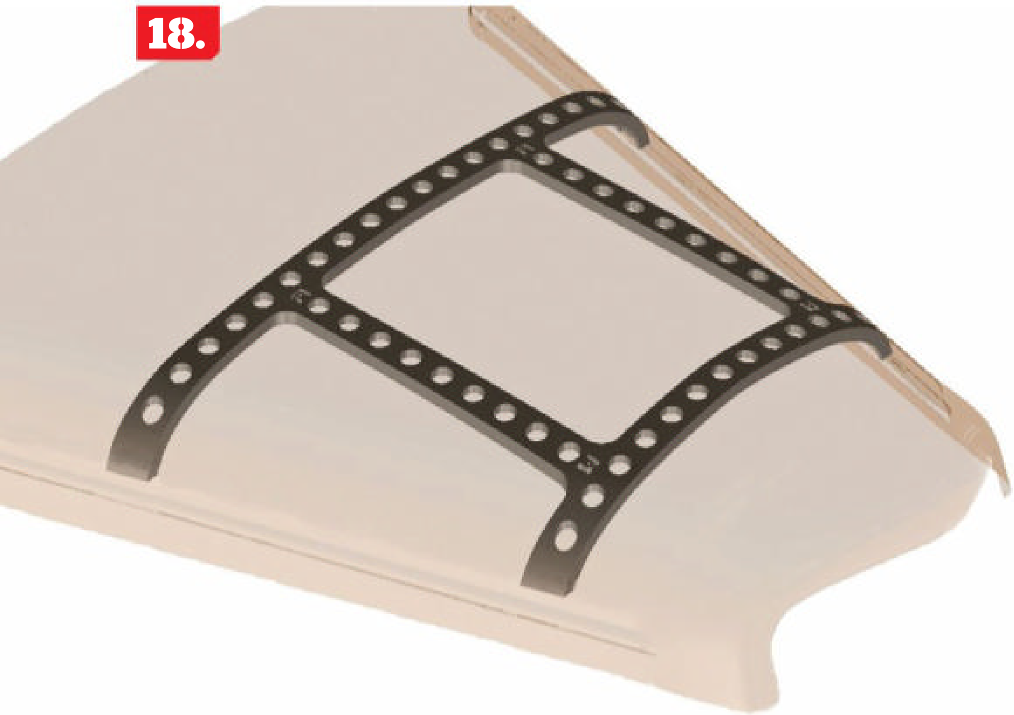

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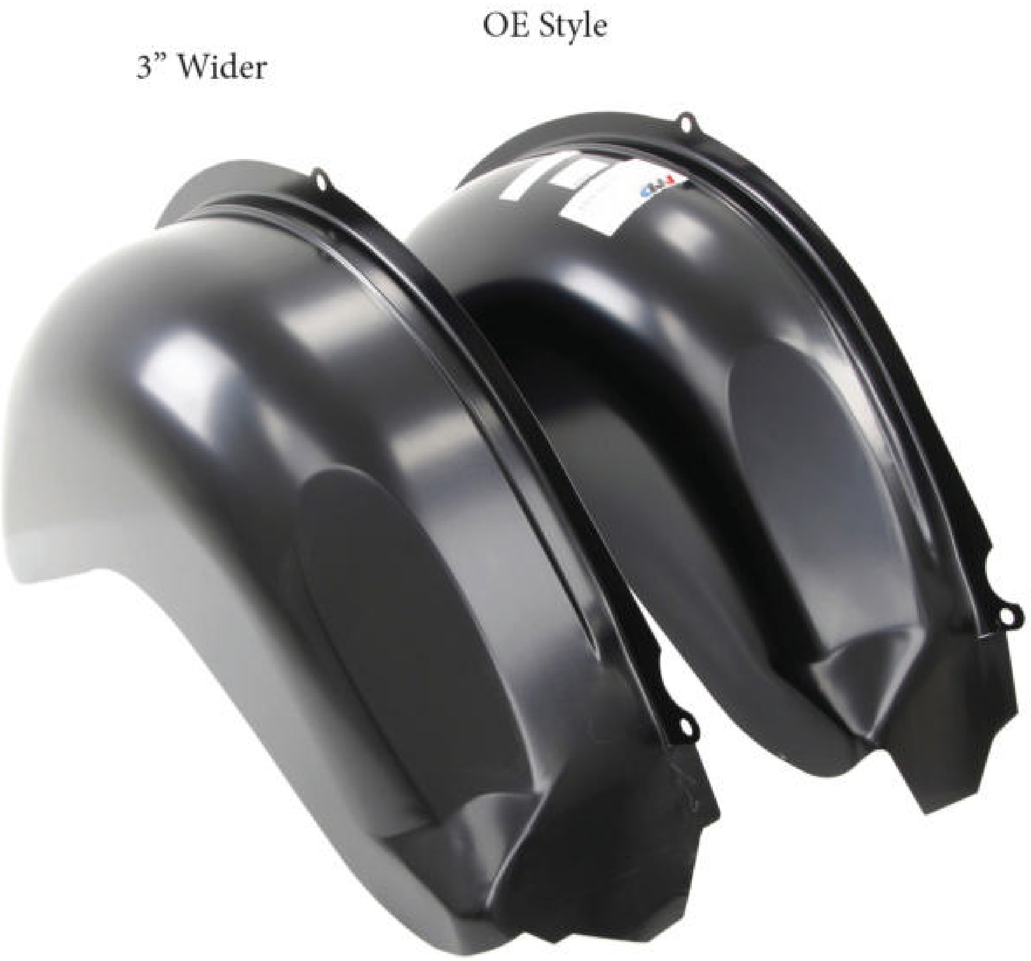

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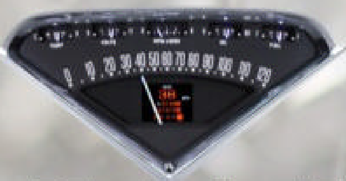

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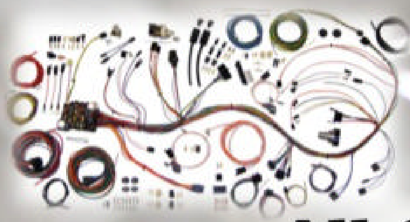

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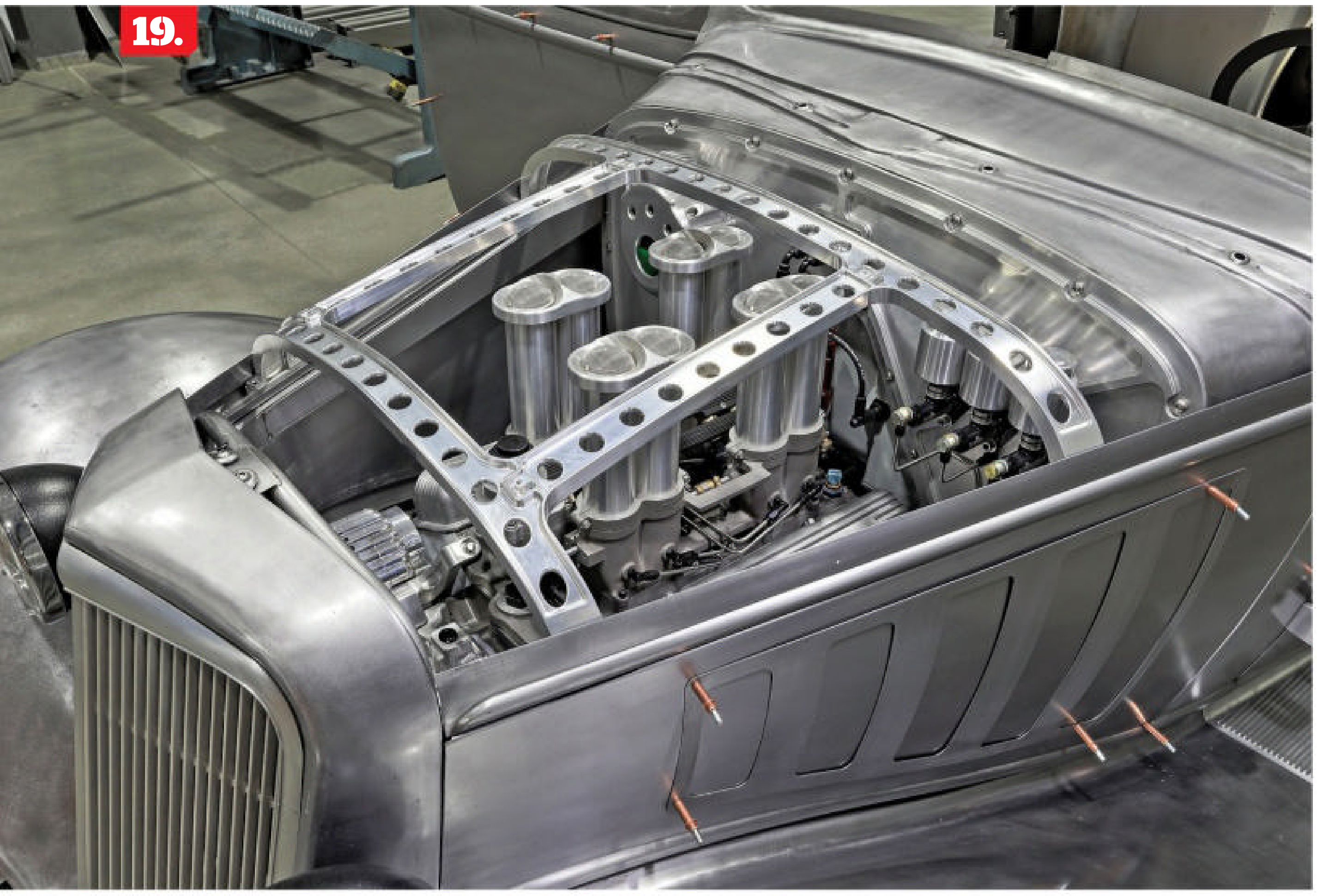

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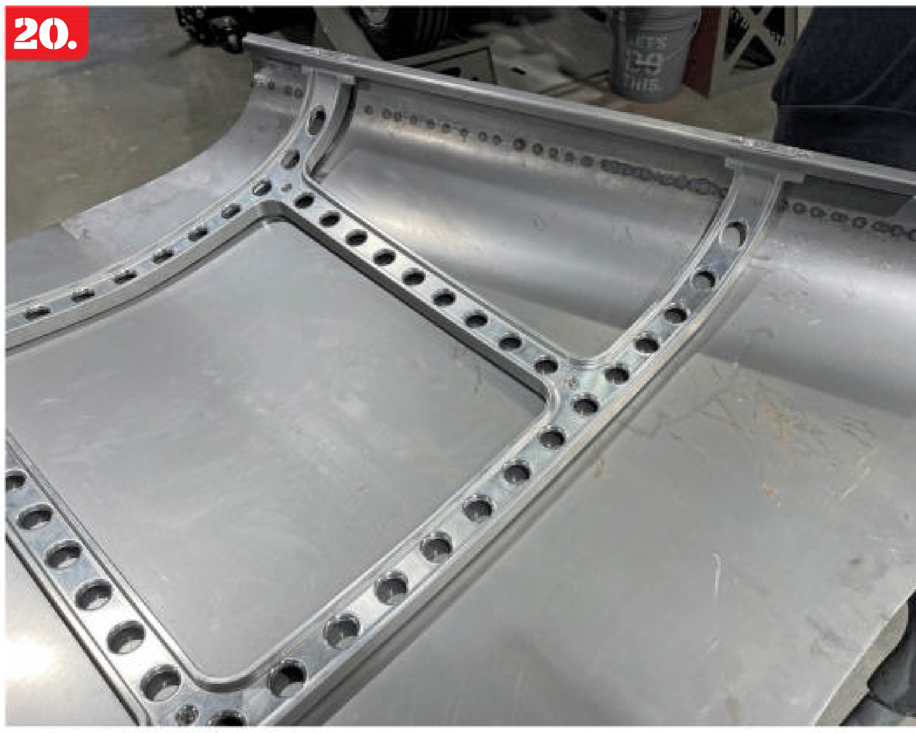
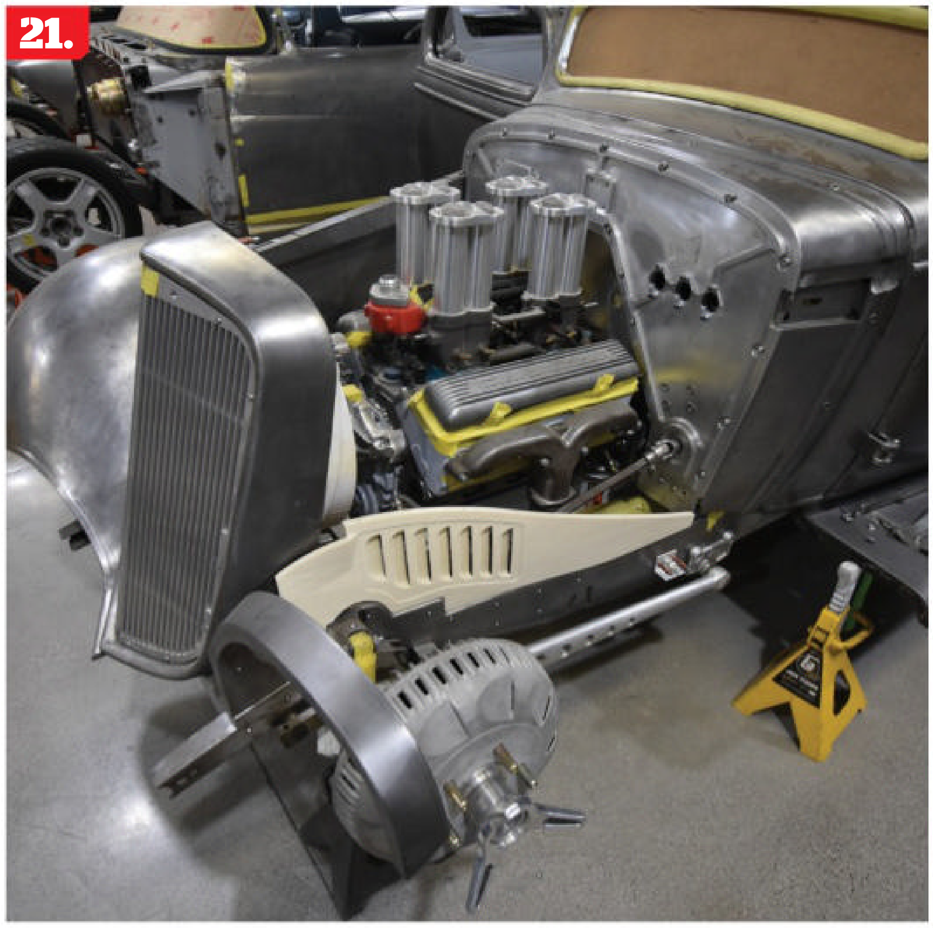


19. Here you can see how the simplified rectangular cross sections of the brace have been relieved, creating an elegant I-beam shape. This reduces the weight and gives it an outstanding appearance.

20. Note the uniform gap between the brace and the hood top. The hood latches are integrated into the design, too.

21.



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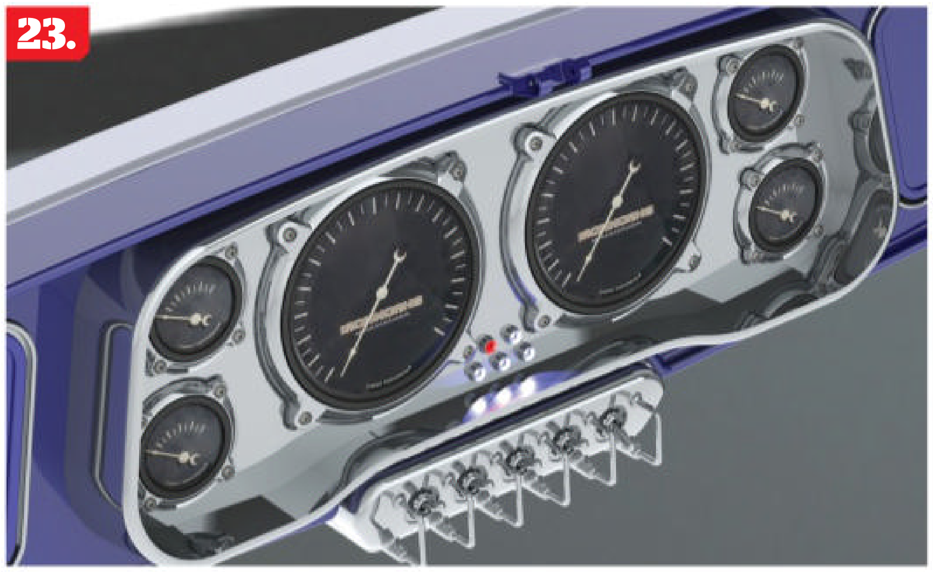


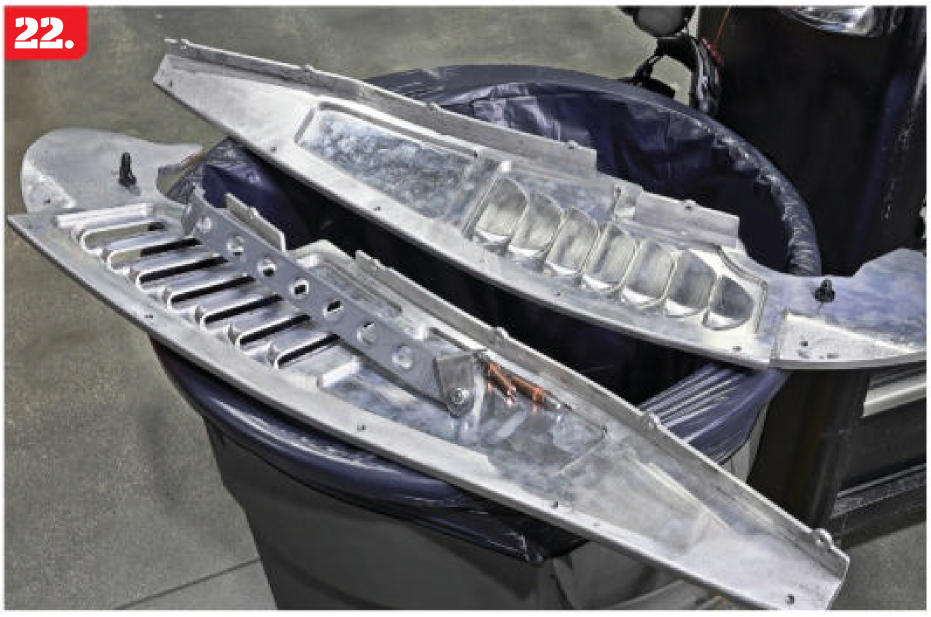
21. A printed plastic inner fender panel is being checked for size and fitment. It's always a good idea to do these checks before committing to machining a part from billet.

22. These are the billet aluminum inner fender panels in preparation for being fitted to the car.

23. Here's a CAD rendering of the dash instrument cluster. Many versions of this were modeled before making the final decision.

24. The instrument cluster, glovebox doors, and the switch panel are machined from billet aluminum, and the larger dash panel is a printed part used for checking the fit of all the components before it is machined.

22.



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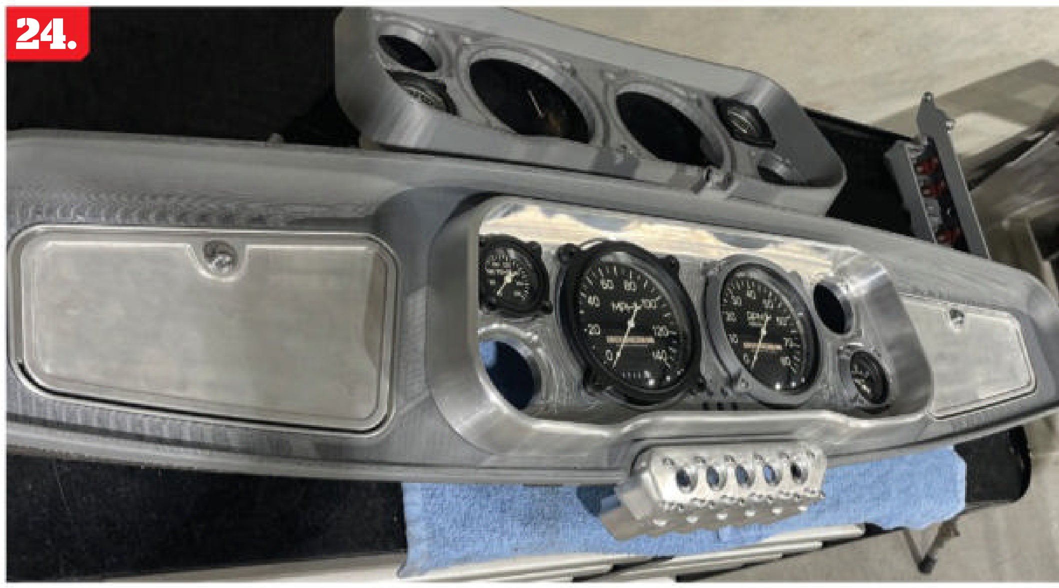

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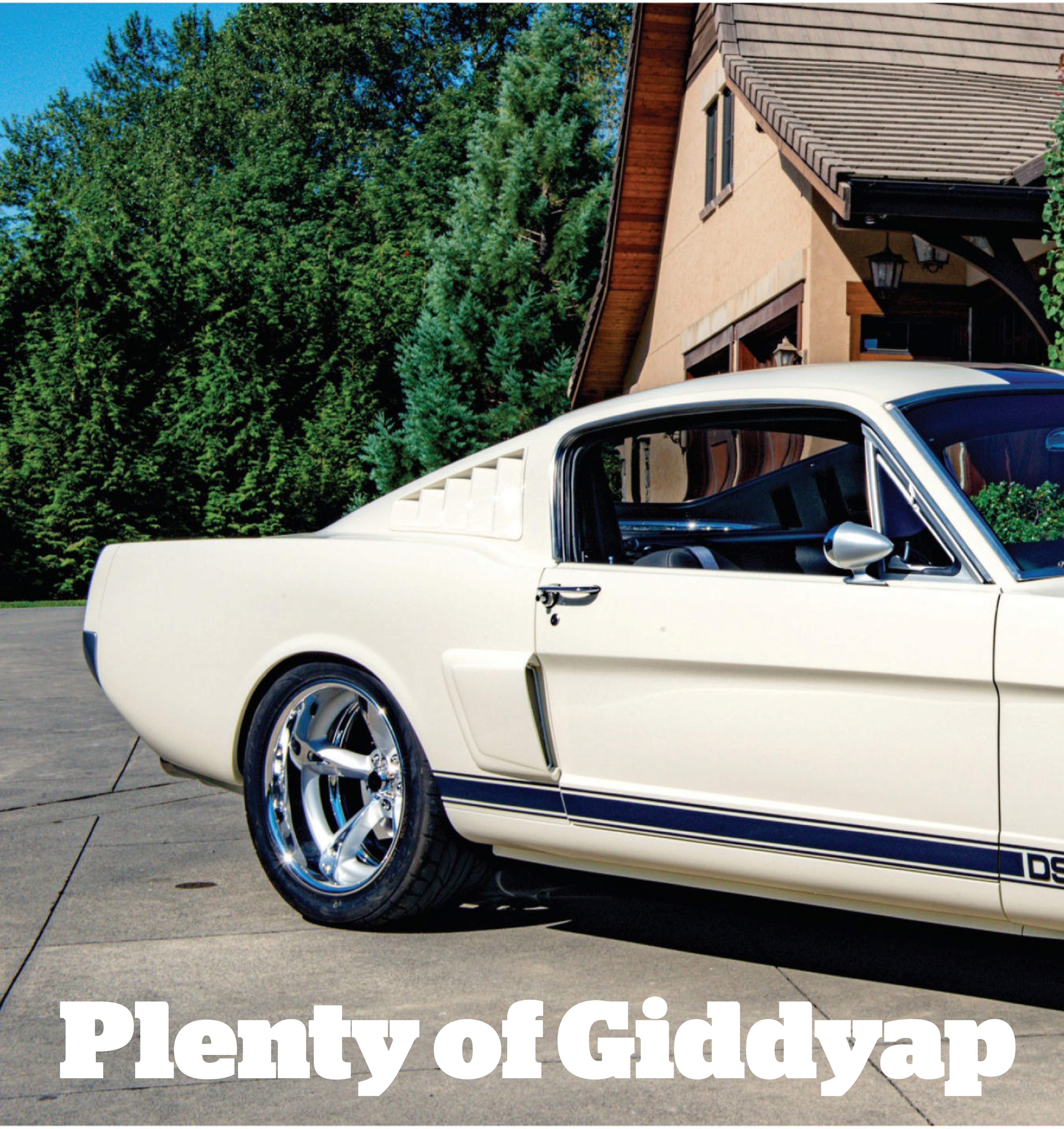


Plenty of Giddyap

This '66 Ford Mustang Fastback Has the Ponies to Back Up its Performance

BY **BRIAN BRENNAN** ▪ PHOTOGRAPHY BY **BRIAN WOODWICK**

A lot has already been written about the Ford Mustang, especially the first-generation ('64-73), American-made hot rod. However, plenty more can be said for what individual hot rodders like Michael Newman teaming up with Tim Divers of Divers Street Rods (DSR) of Sultan, Washington, can accomplish. This '66 Ford Mustang Fastback has the right elements to give it staggering performance all the while keeping those classic fastback lines.

At first glance this '66 Mustang gives all the appearance of the iconic Mustang GT350 with its U.S. international racing colors of a white body with blue stripes. Upon closer examination you realize the "DSR350" is its own moniker. A great side story is how the original GT350 received its badging. According to stories from the day: The GT350 had neither 350 ci nor 350 hp. According to Shelby the name was arbitrary. The distance between Carroll Shelby's two shops was 350 feet. Well, as it turns out, it's 350 feet from Divers' shop to his cigar shed, hence DSR350. (Hey, you can't make this stuff up!)

The foundation for this fastback is based on a factory frame that DSR installed, Detroit Speed subframe connectors, and then an Aluma-Frame front IFS. The Aluma-Frame is based on a cast-aluminum cradle with mounting components coupled with tubular upper and lower control arms, a Detroit Speed rack-and-pinion steering, and JRi aluminum coilover shocks with 400-pound springs. To this a Detroit Speed front sway bar and spindles are now used.

SR 350
wilwood

In back the Detroit Speed QuadraLink rear suspension is used that has specific Swivel-Links that allow for pinion angle and/or wheelbase to be adjusted. Long-lasting rubber bushings are used and add to the quiet ride along with a panhard bar and JRi aluminum coilover shocks (175 pounds) that feature black powdercoated components throughout. A Ford 8.8-inch differential with a 3.73 gear, Nitro Gear & Axle shafts, and a Drivelines Northwest driveshaft are all now in service.

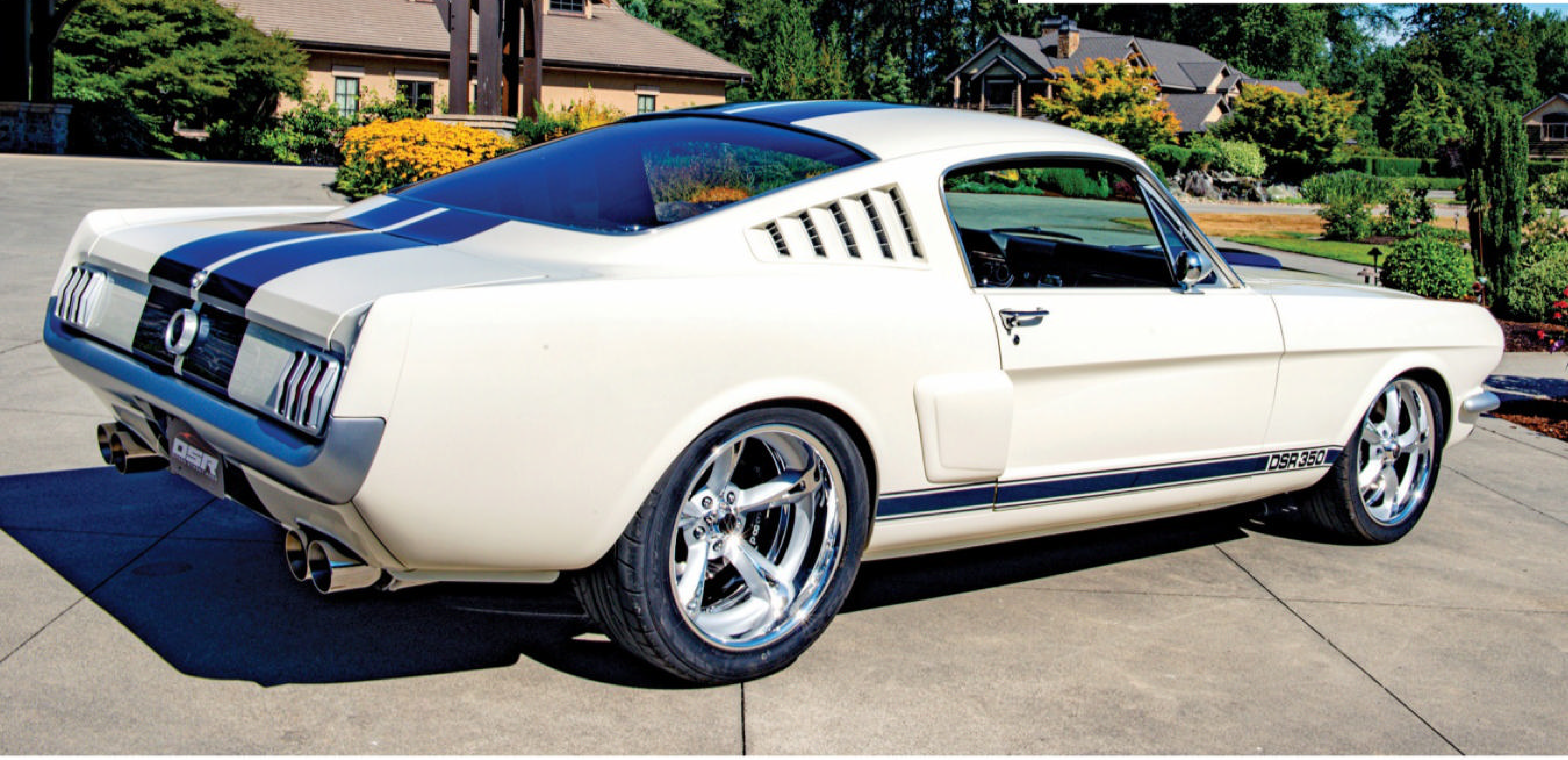
At the corners is a full complement of Wilwood Superlite black powdercoated calipers and related accessories. In front six-piston calipers and 13.06-inch slotted rotors are used while in back four-piston and 12.88-inch slotted rotors are pressed into service. Rolling stock consists of Schott Mach V EXL 18x8 front wheels and 18x10 rear wheels wrapped with Nitto NT555 G2 rubber, measuring 245/40ZR18 and 285/40ZR18, respectively.

All of this "goodness" is neatly surrounding more power than the original Mustang Fastback was ever intended to have. A Ford Coyote 5.0L V-8 (302 inches) with aluminum block and heads provides the 500hp "giddyap." Internally, a Comp Cams Stage 2 camshaft is used while a Holley Dominator EFI with a FAST Big Mouth LT 87mm aluminum throttle body is mounted up top. The air box is another custom DSR item that is fitted with a K&N air filter. Firing the fuel load are stock coil packs receiving their "juice" from an Optima RedTop battery run through a Race Proven alternator while the spark continues within ACCEL copper core plugs. Engine cooling chores falls to a Be Cool radiator, Maradyne electric fan, an MMR remote oil filter, and a Setrab Proline trans cooler. The serpentine belt system comes by way of Vintage Air, which also supplied the cool indoor climes via their A/C system.

Getting the spent gases out are a pair of Detroit Speed SS headers, 1-7/8-inch main tubes leading back to 3-inch exhaust pipe all welded up by Ian "Chia" Richards of DSR. From here the exhaust runs through a pair of Hooker mufflers and Hooker Blackheart Attitude Cutouts. Matched to the Coyote V-8 is a Ford 4R70W automatic with a TCS Performance Transmissions 2,000 stall-speed converter with some additional improvements handled by Rick from Snohomish Transmission.

We did mention that this Mustang fastback retains its vintage looks but that's not to say there hasn't been a handful of well thought out modifications performed at DSR. At first glance you may notice that the cold-air intake and the hood scoop are tied together while the front bumpers are tucked and smoothed and the rear bumper is flush mounted. The lower front air dam is fitted with a screen as are the side grilles. The distinctive DSR350 badges (lower front quarter-panels) were designed by Shane Burley and positioned over the Sig Schott bodywork and the Rich Thayer sprayed-on PPG Wimbledon White and custom blue mix color used for the main body racing stripes. (Remember, the U.S. international racing colors?) What you might not see, at least not here, are the DSR-installed Detroit Speed gas tank and rear mini-tubs to accommodate the oversized rubber.

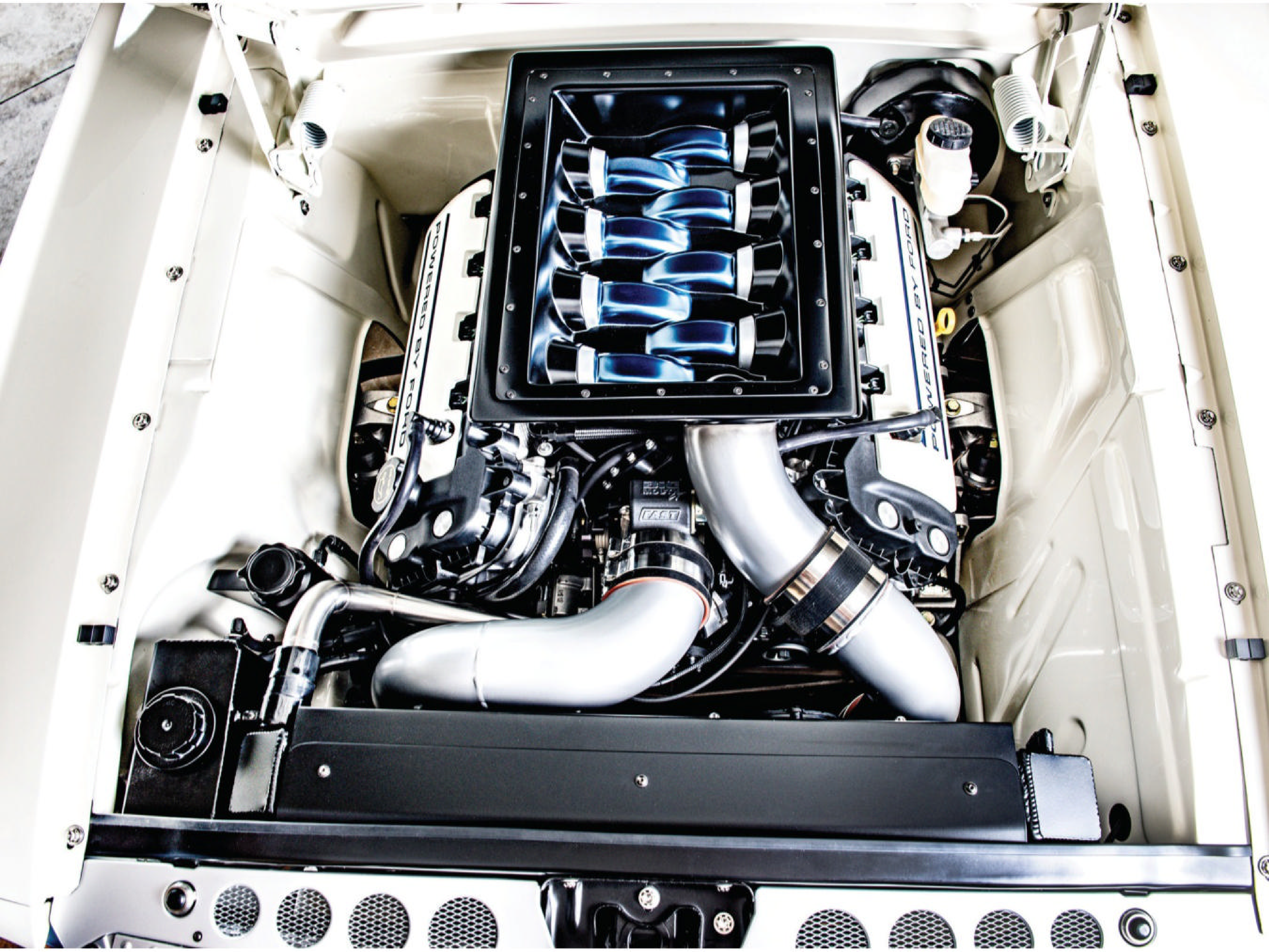
wilwood


DSR 350
DSR

Now, how about a visit to the inside and see what's happening here? A stock dashboard with factory dashpad is used but from here a full complement of Dakota Digital VHX gauges were installed. You may also notice the "factory" radio that comes by way of Custom Autosound. It is a USA-740 that retains the classic look but at the same time comes with built-in Bluetooth and is smartphone compatible. It also packs 300-watt peak power along with USB input. It can even control a remote CD-1 player. Other interior goodies include the Vintage Air A/C heating and air conditioning system, Detroit Speed Selectra-Speed windshield wiper system, an ididit tilt-column topped with a reproduction wooden three-spoke steering wheel. All the required wiring was handled by DSR.

The upholstery comes by way of OEM Ford Alcantara for the seats and headliner and was realized by DSR's own Scott Divers, Tim's brother. Alcantara is a synthetic suede material that is resistant to abuse, long lasting, and easy to maintain, making it popular with manufacturers and gaining in popularity with hot rodders. The seating is comprised of DSR-modified '15 GT350 front and rear seating. NRG four-point belts were used. Note that the rear seat folds down and has mounting provisions for the spare tire. All of this and more is the handiwork from DSR. Scott fabricated the rollbar and integrated it into the interior as would be found on a Shelby 500 convertible. The door panels are composite pieces that house the stereo speakers as well as the door pulls and door release.

There's a lot to the eye when checking out this '66 Ford Mustang fastback. We would like to think that early Mustang lovers would find this build just what Henry would have ordered … maybe even, Mr. Shelby. **MR**



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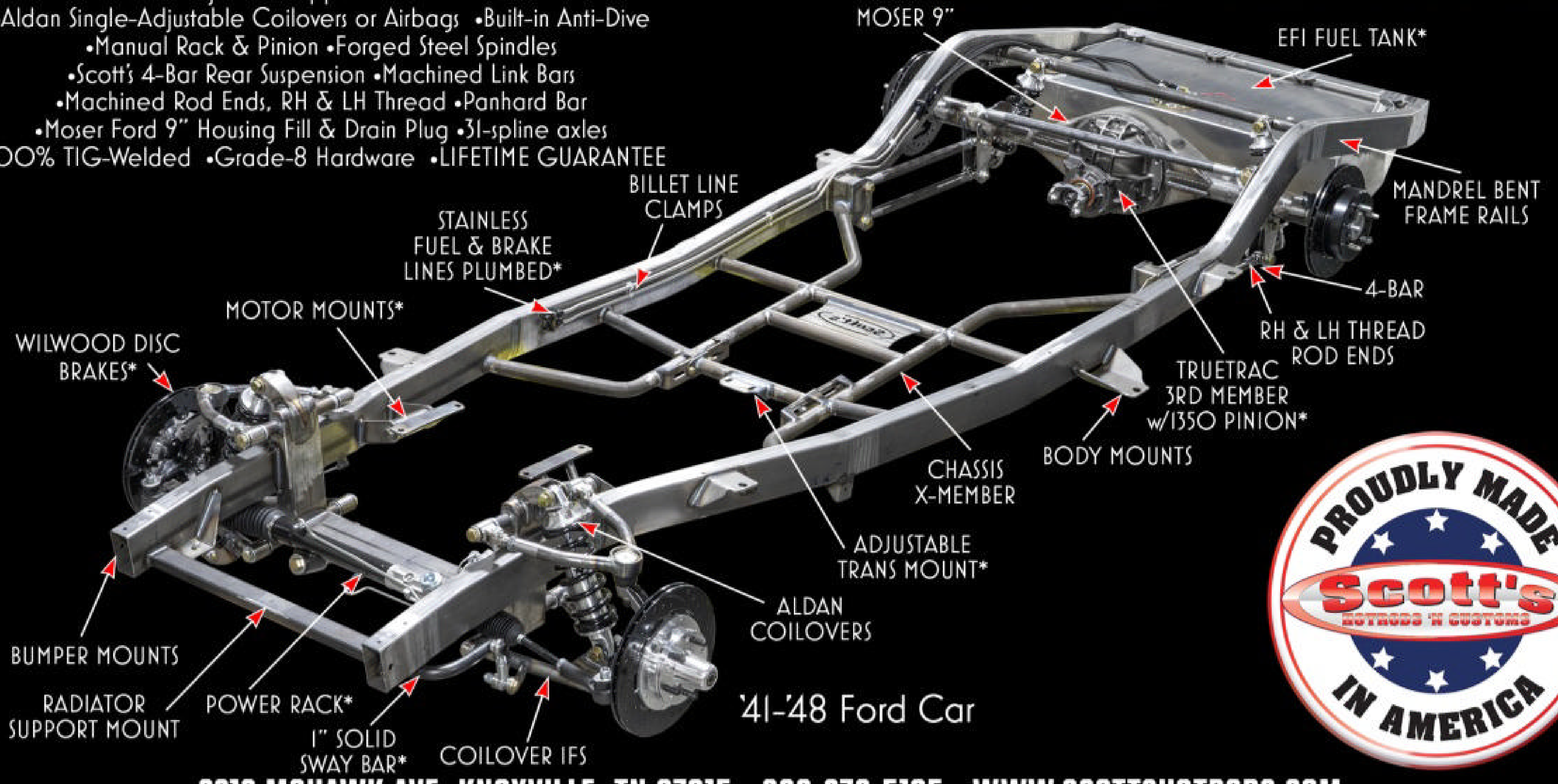
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1.

1. Geoff Jones of Hot Rods by Dean is reading the installation instructions of the Vintage Air Streamline Heater (PN 660066) in a Model A on Deuce 'rails. If you can fit it under the dash of a Model A body then you can fit it just about anywhere.

THE HEAT IS ON... OR OFF

There is no Need to be Cold on a Long or Short Drive

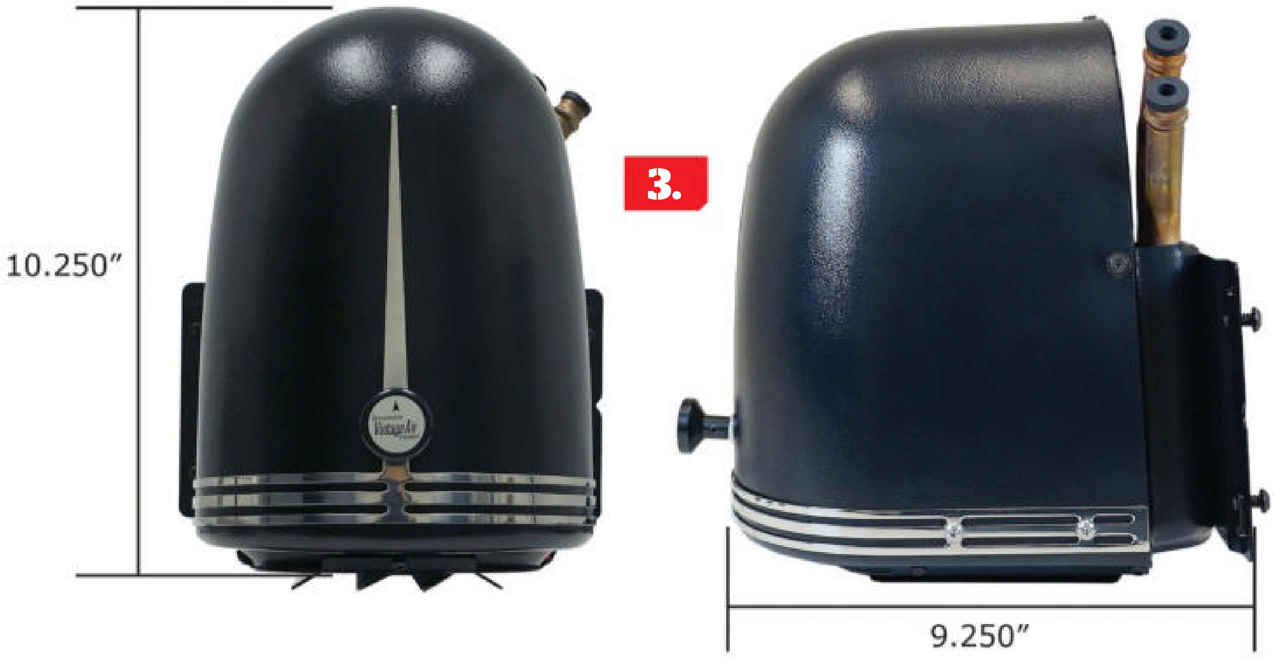
BY **BRIAN BRENNAN** PHOTOGRAPHY BY **THE AUTHOR**

In our world of hot rods, especially early cars, the lack of a heater and/or A/C used to be the norm. Nowadays there's a simple solution to solving heating and A/C needs. Well, it's much easier for the closed cars, but for open roadsters (and the like) the use of A/C, while occurring more frequently, the real need is for heat. A small heater only is more affordable than an entire A/C system, and sometimes more practical. So, with this in mind, we came up with the Vintage Air (VA) Streamline Heater (PN 660066) ideally suited for open hot rods. It is designed to sit separately below the dash.

Next stop was at Hot Rods by Dean in Phoenix to check out the installation of one of the VA Streamline Heaters in (what else?) an open Model A roadster. While this is the starting point for our story, the fact is you can use this in any hot rod project where you have a front-area-only to maintain warmth.

2.

2. The Vintage Air Streamline Heater is modeled after the Art Deco–style of the '30s. Made with a molded plastic cover it has three speeds. The standard black ABS cover can be painted to match your interior colors.



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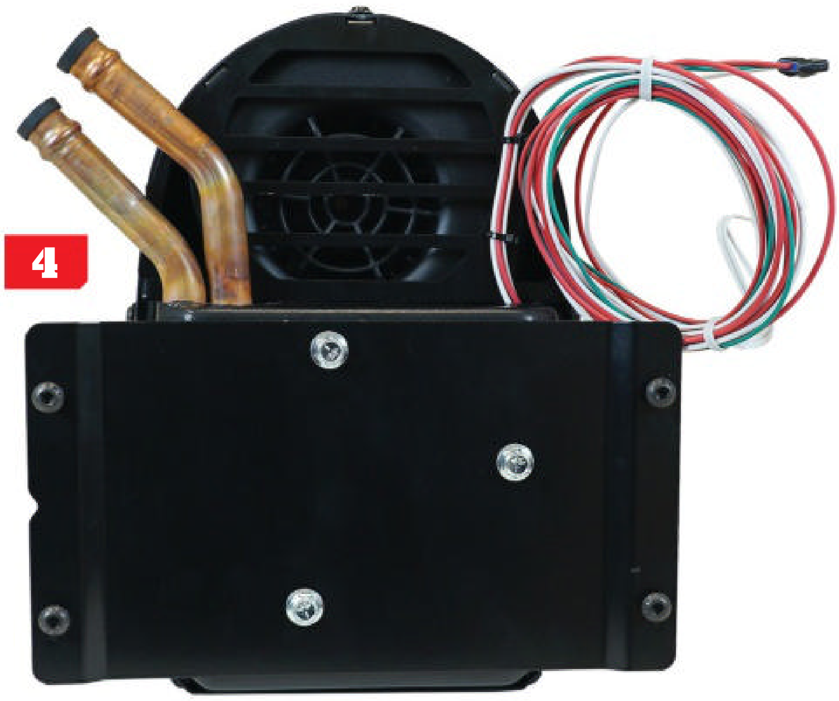


4

5.

Streamline
VintageAir
Heater

3. Compact in design, measuring 10.250 inches tall and 9.250 inches deep, it is ideally suited for early hot rods and any of those hard-to-get-to places where space is at a premium.

4. The mounting plate has three 1/4x1/2-inch button head screws that hold the furnished bracket to the heater. From here there are four 1/4x1/2-inch button head screws that hold the bracket to the firewall.

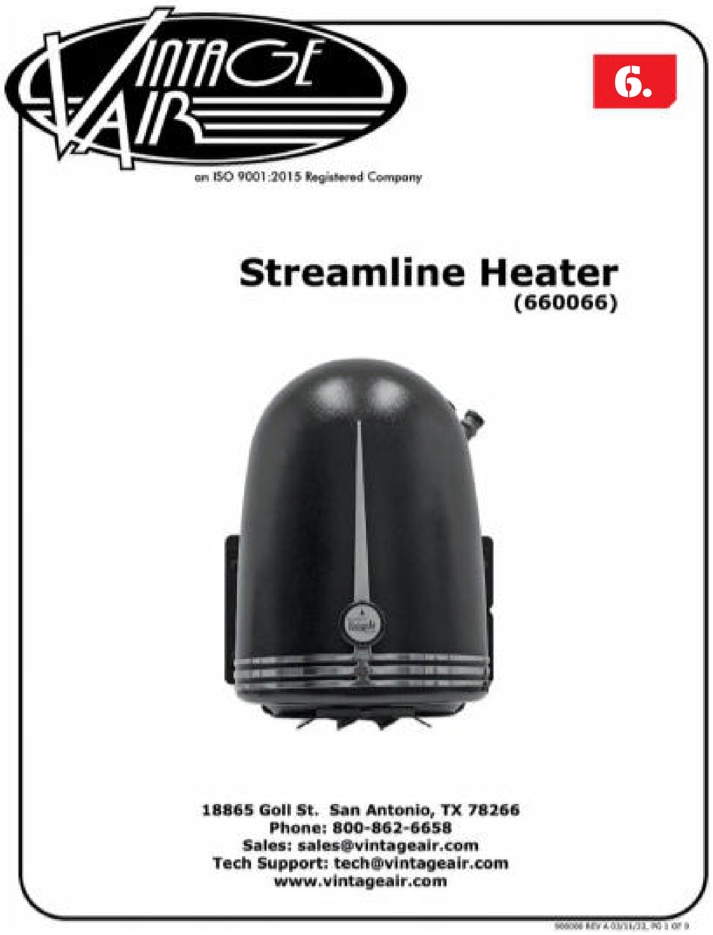
5. Top view of the Streamline Heater shows off the early '30s Art Deco styling as well as the three-position switch with VA logo on top and the stainless steel trim.

6. In the VA instruction manual you will find clear and concise drawings that show how the mounting bracket is affixed to the heater as well as to the firewall.

7. In our installation Jones opted to make a pattern of the rear of the heater so he knows exactly where he can fit the heater beneath the dashboard without hitting any of the dash-mounted gauges.

8. Jones used a step-drill bit to make the firewall holes for the mounting bracket.

6.



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7.

8.

9.

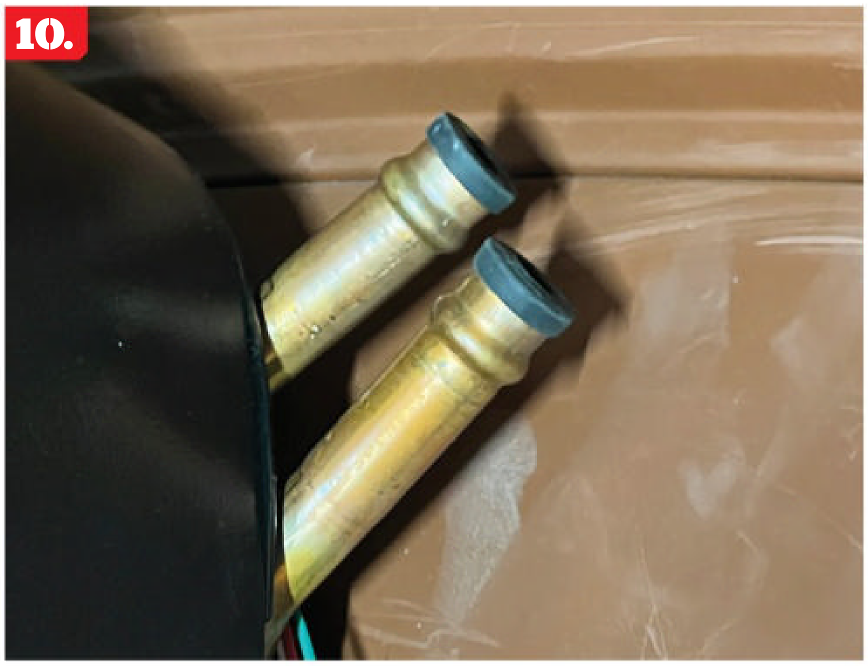
9. Next up is the test-fit to make sure the heater doesn't interfere with anything.

10. The two 5/8-inch heater connections rise out of the Streamline Heater. If your engine is equipped with 3/4-inch hose, you will need to remove these and replace with two 5/8-inch heater connections as these aren't provided.

11. This is the water pump fitting point on our small-block Ford V-8. This is a low pressure suction port where the water from the heater goes back to the engine.

12. This is the pressure side fitting point on the intake manifold near the thermostat where the water leaves the engine and heads to the heater itself.

13-15. In our installation two 1-1/4-inch holes were drilled in the lower portion of the firewall just above the toeboard. It is here the coming and going water hoses will be run.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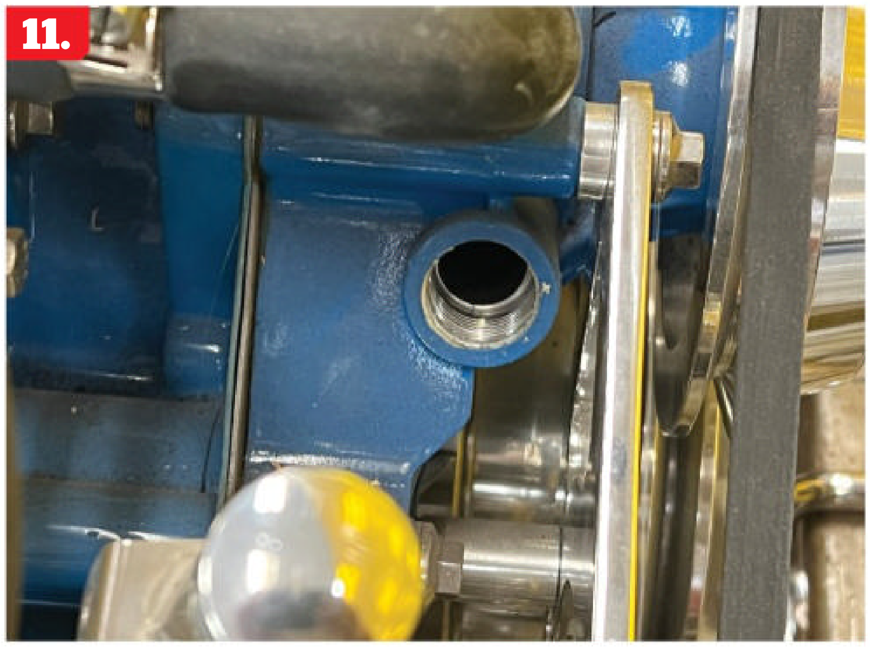
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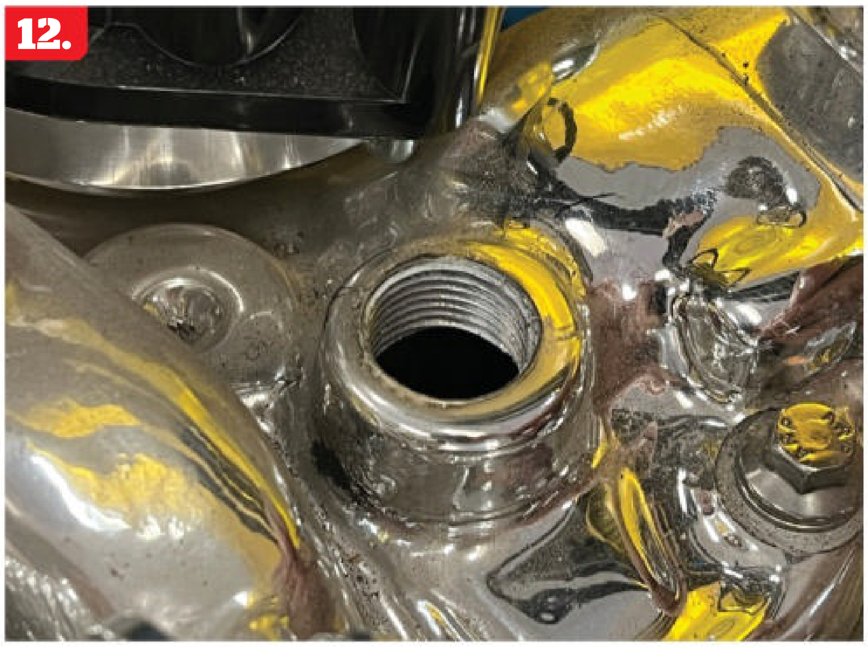
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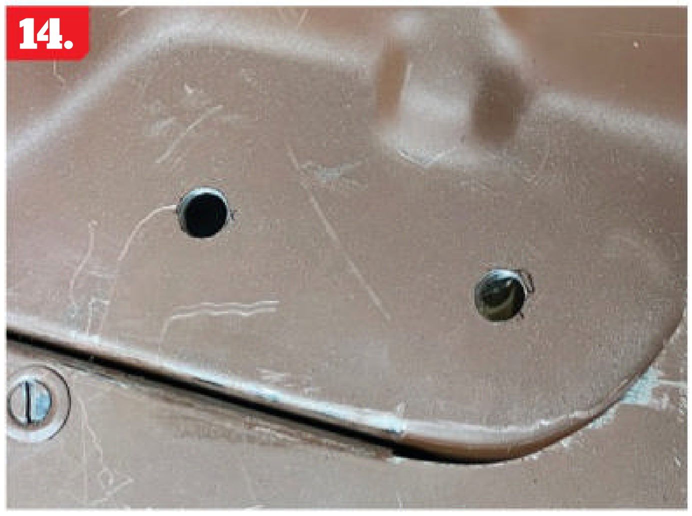

14.

15.

16.

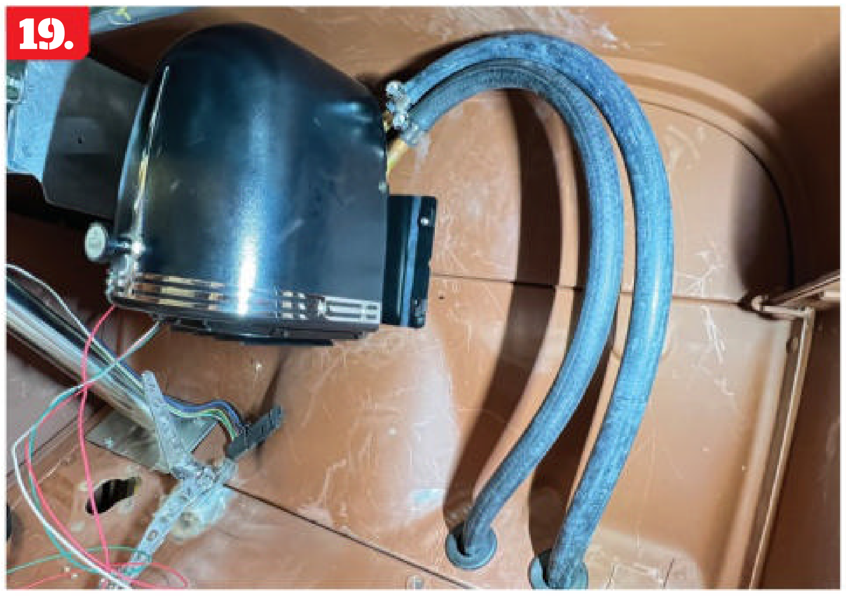
16. Once the holes are drilled it's a good idea to go over the raw metal edges and knock off any sharp edges before installing the grommets.

17-18. A pair of proper-sized rubber grommets (one for each heater hose) are provided along with a smaller grommet (requires a 5/8-inch hole) for the wiring to pass between the engine and passenger compartments.

17.

18.

19.



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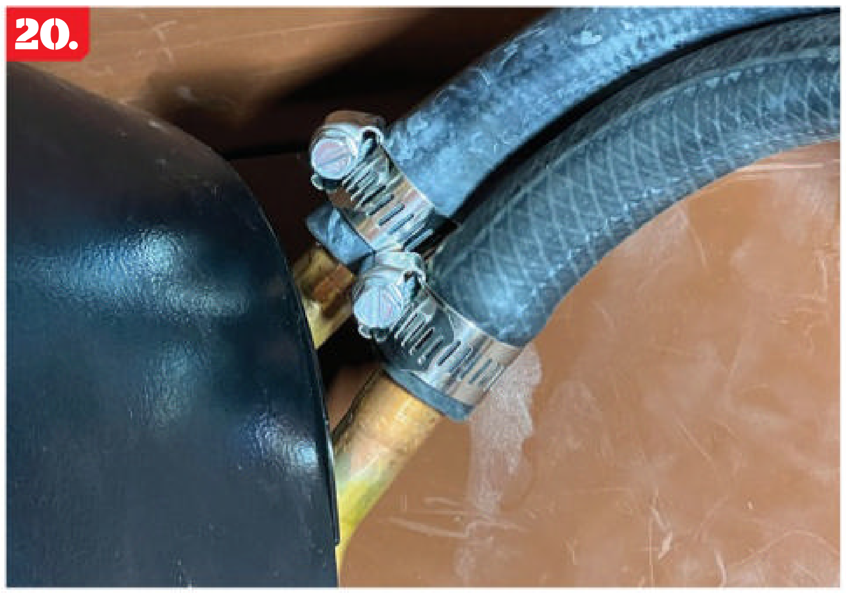

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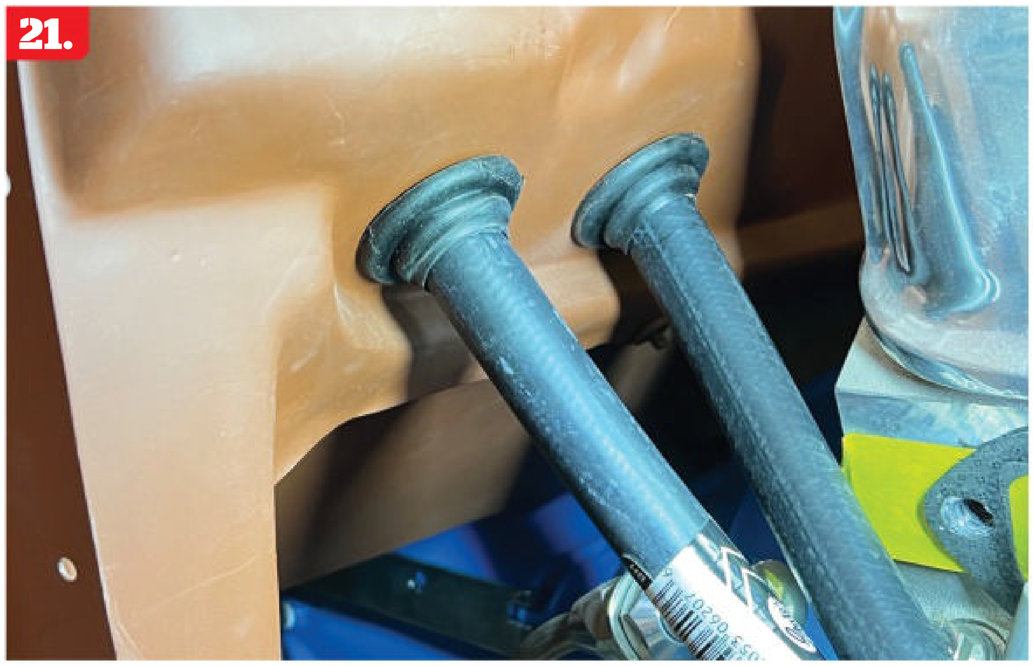

19-21. Here we have our two heater hoses clamped to the heater and passing through the grommet filled holes in the lower portion of the firewall.

The Streamline Heater is a powerful heating system designed with classic styling to match the Art Deco designs of the '30s. In 1929, Ford's Model A introduced the first of the car heaters. Based on engine heat you had to wait for the heat to be generated, which in the wintertime may be a longtime coming. The '33 Ford was the first to use an in-dash heater with a miniature gasoline boiler. Next up in 1930, General Motors came up with the standard heater core using the car's engine coolant and fans to heat the interior of the car. This became the industry standard. Then in 1937 Nash Motors introduced the use of climate controls, air filters, and the heater core. The first well-known passenger car/truck heater was the South Wind heater. Harry J. McCollum invented the early versions in the '30s, offering a gas-powered heater. He sold over 3 million units by 1948.

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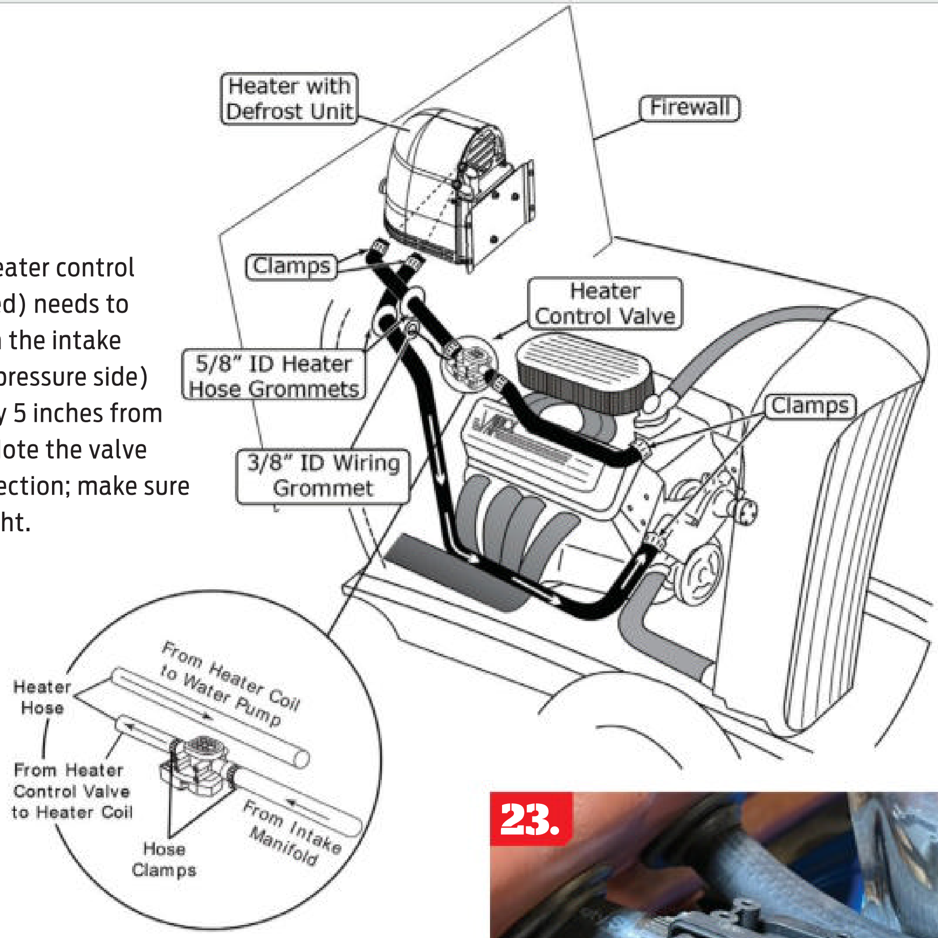
22-23. The heater control valve (supplied) needs to be installed in the intake heater hose (pressure side) approximately 5 inches from the firewall. Note the valve has a flow direction; make sure to get that right.



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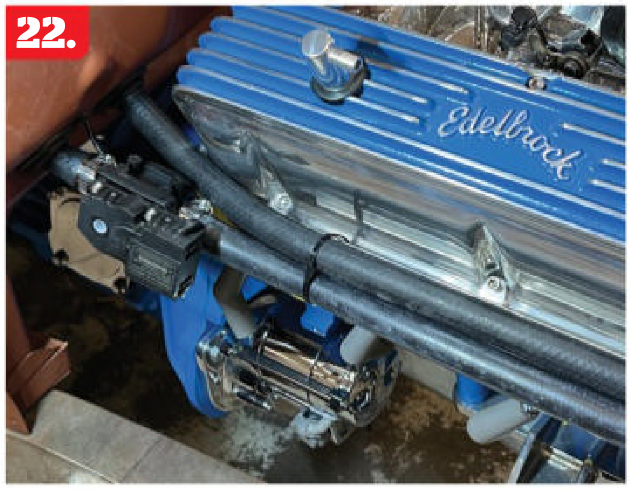

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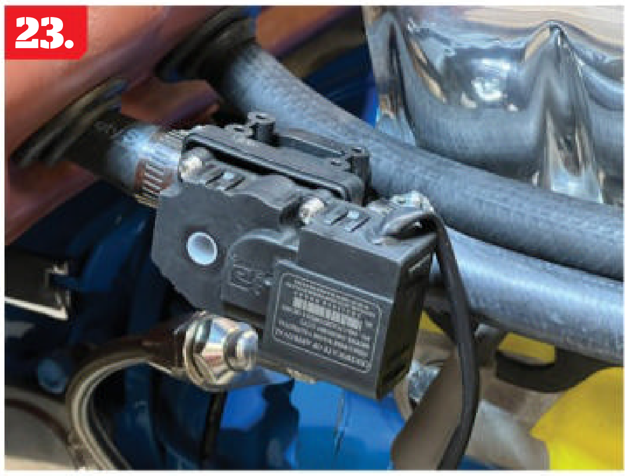
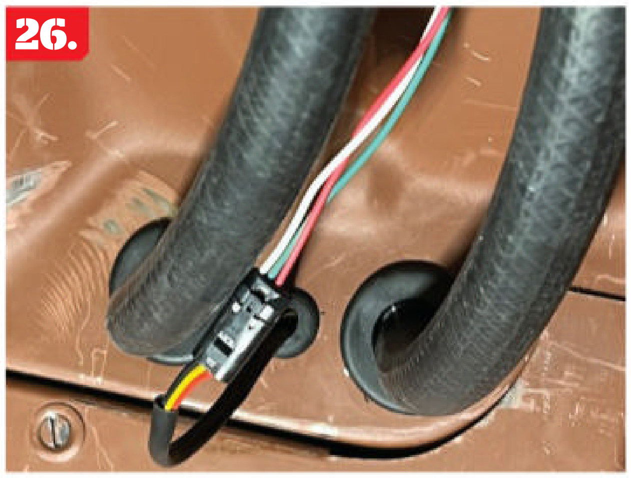


24-25. The heater hoses will attach to the water pump outlet as well as the intake manifold fitting outlet.

24.

25.

26.



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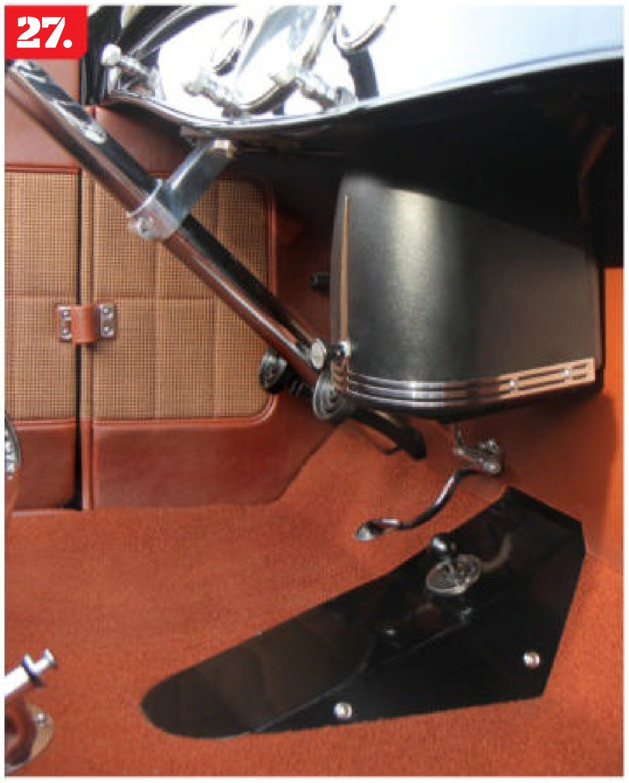

The VA Streamline Heater utilizes a molded plastic cover to portray the Art Deco–style, polished stainless steel trim, and single-knob operation for ease of use and to ensure safety. The heater louvers are used for directing airflow out of the bottom of the unit and they are powdercoated and separate air between the driver and passenger footwell areas. There is a single control knob that regulates the three-speed blower fan and the electronically controlled heater control valve while the high-efficiency copper and brass CuproBraze heater core ensures consistent, reliable heat on cold days.

Geoff Jones of Hot Rods by Dean was our go-to guy for the installation. He's in the midst of a Model A on Deuce 'rails … the old reliable highboy roadster. While the build has plenty of cool stuff, it's the cool air that needs a little warming up for those early morning Arizona drives. Follow along as the install is basic but the results are amazing and will add an entirely different level of comfort to driving your roadster … or any other early hot rod that could use a bit of warming up.

Mounting is pretty basic, requiring a few holes to be drilled and then attached to the firewall. From here there are only two fittings that run to and from the engine to deliver and return the heated water. Lastly, the electrical portion is another pretty simple project. There are two groupings of wire: One grouping comes from the heater control valve (black, yellow, red) and a second grouping that comes from the heater control (brown, white, green, red/orange).

Having been a roadster driver all of my hot rodding life, I can tell you there are a couple of other tricks that will go a long way to making your heater perform to the best of its abilities. I for one always carry a passenger blanket to throw over our legs and laps to keep the hot air in. I also have seat heaters (hey, I'm a lover of creature comforts). And the biggie, when driving along my roadster has a tonneau cover that can be placed over the passenger seat area that really helps to keep the hot air generated by the heater circulating around me. Nothing like being comfortable on a cold drive. **MR**

26. The smaller (single) grommet is used to pass the wires from the heater, through the firewall, and then onto the heater control valve.

27. Here is an example of the VA Streamline Heater installed under the dash of a roadster. Provides good looks and plenty of heat to keep you warm on those cold days.

SOURCES

HOT RODS BY DEAN
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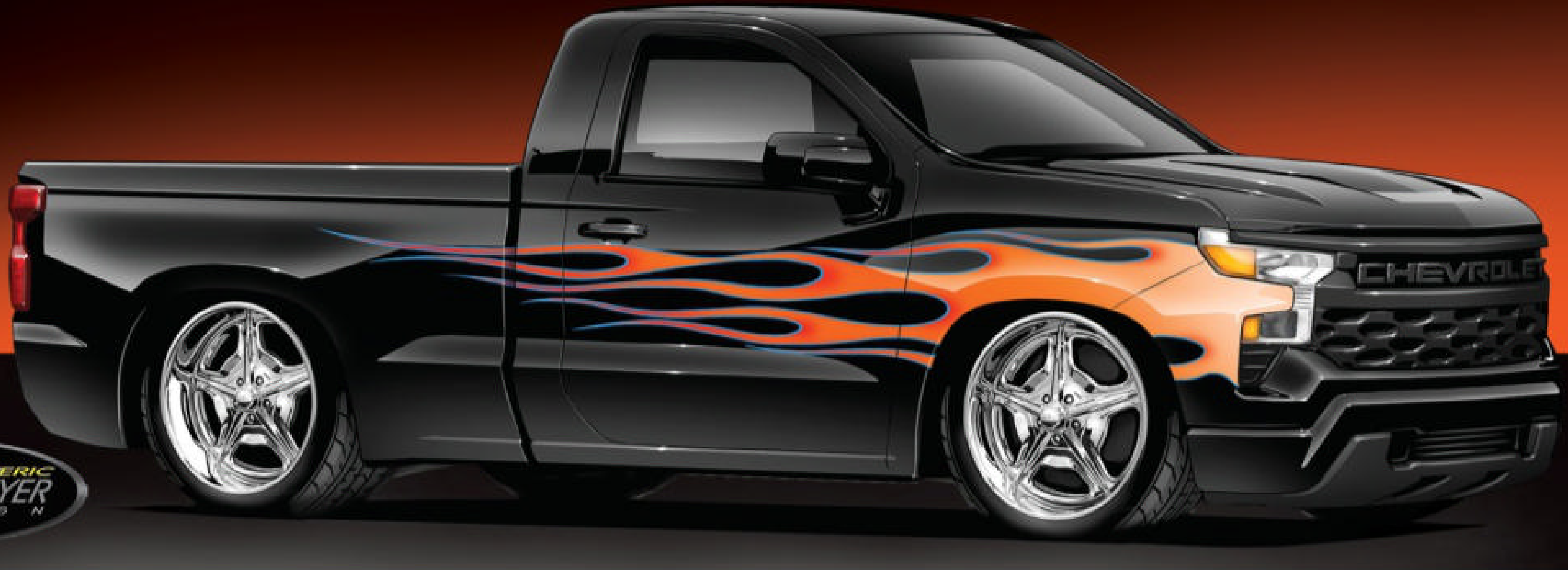

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BY **TOMMY LEE BYRD** PHOTOGRAPHY BY **THE AUTHOR**

Family Tradition

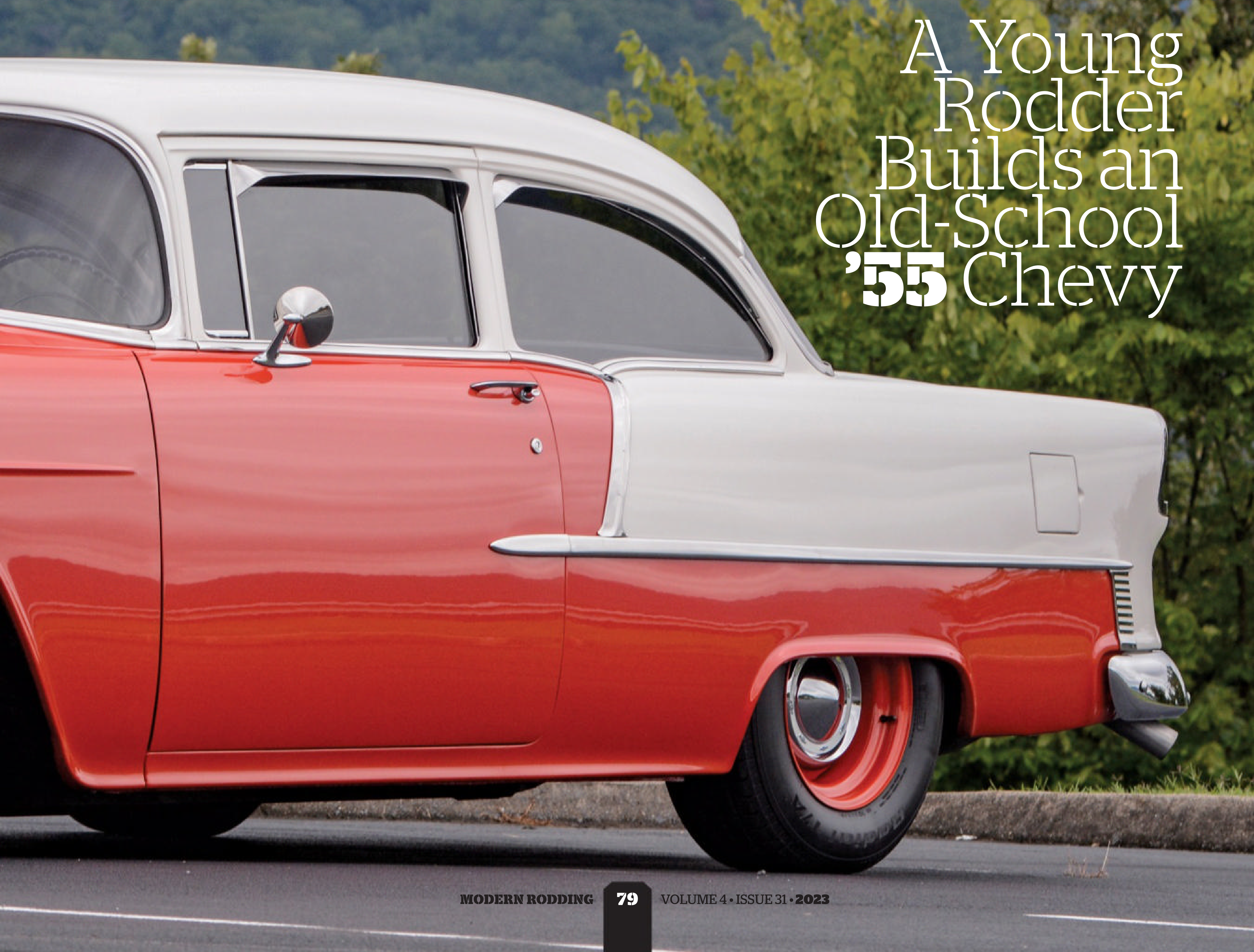
Chevrolet
SO-CAL

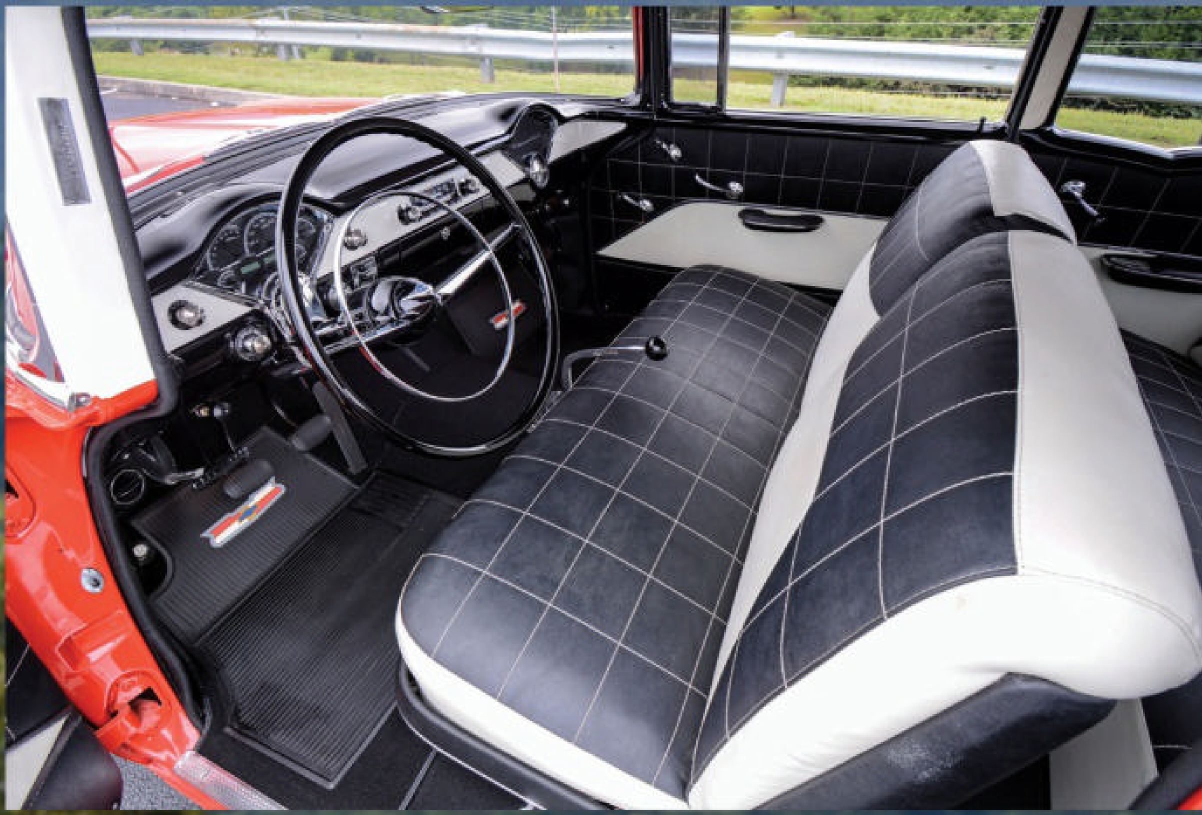
A Young Rodder Builds an Old-School '55 Chevy

Growing up around old cars can have lifelong effects. For some, it takes many decades to reach a financial position to invest in a car that takes them back in time. Casey Daniels, a young car guy from Taylorsville, North Carolina, took the accelerated route and bought this '55 Chevy 210 Delray when he was 25 years old. His dad, Rick, bought a '55 while Casey was still in diapers, and those childhood memories of that car keep their passion for old cars alive.

Casey found this '55 Chevy Delray for sale online. He was out of town for an extended amount of time and didn't want it to slip away, so he had his dad give it a once-over. Rick said it was a great car and that he should buy it, so he made the deal without seeing the car in person. Casey said that the previous owner didn't want to sell it to him because he was so young, but Rick assured him that he'd take good care of it and be responsible. It was a long three months before Casey made it back to town, but the ideas were already brewing. The car was a driver but didn't check all the boxes for him just yet.

After a few years of owning the car, Casey was ready to give it a makeover, so he gathered up some parts and contacted a few trusted shops in North Carolina to help him make it happen. Deals Automotive handled the suspension upgrades. Casey went with a very simple setup but he wanted to make sure the stance was just right. To achieve the ride height he wanted, a pair of 2-inch drop spindles and 3-inch drop springs take the place of the stock units. It was also a good time to upgrade to disc brakes, a CPP 1-inch sway bar, and 500-series steering box. Out back, the '55 still rides on leaf springs, but Deals Automotive removed one leaf and installed 2-inch lowering blocks. The stance is enhanced with a set of Wheel Vintiques OE steel wheels, which measure 15x5 and 15x8 and wear dog dish caps. The body color steel wheels are wrapped in BFGoodrich rubber, sized at 215/65R15 and 235/70R15, respectively.





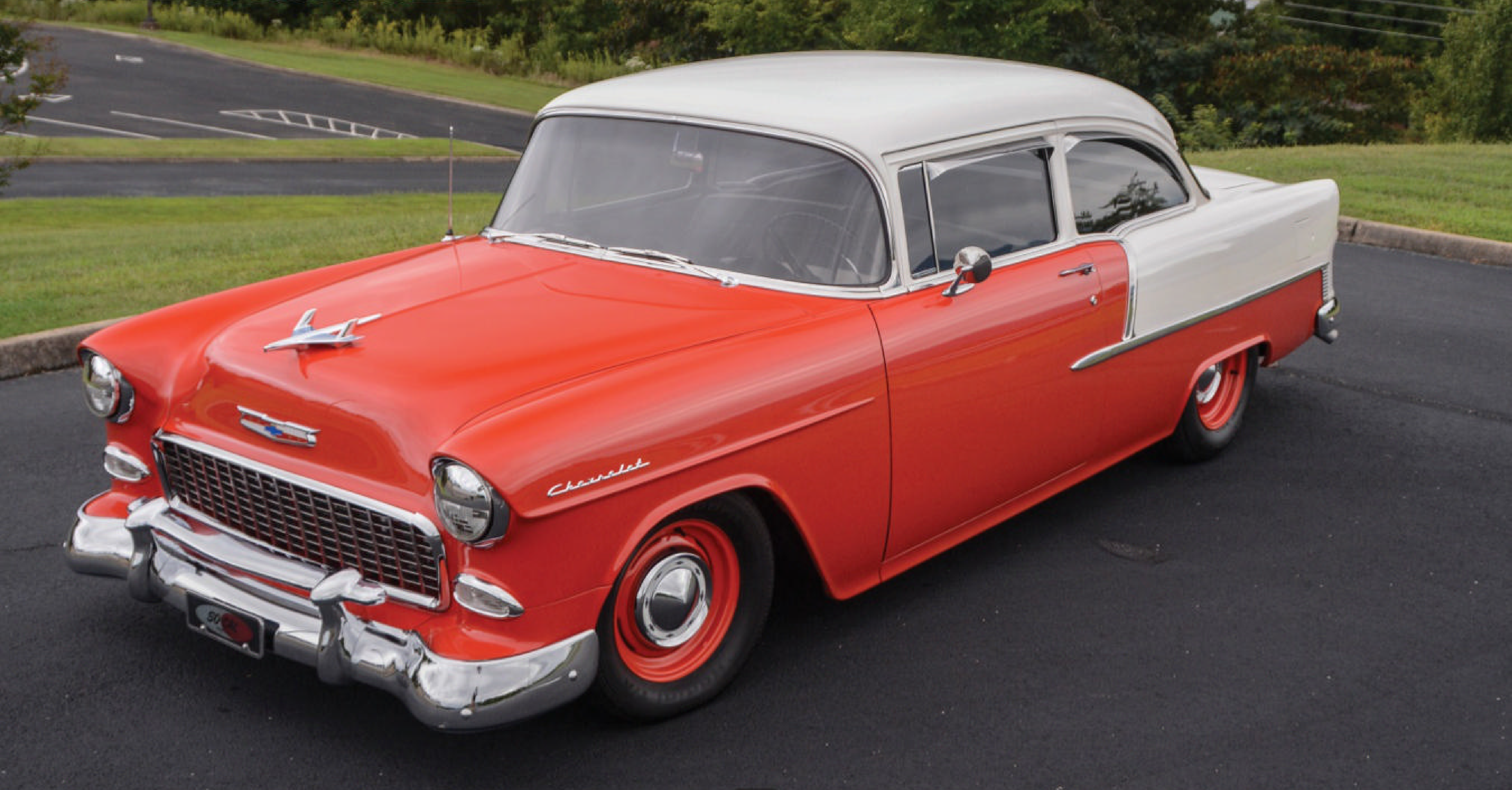
Casey kept it conservative in the horsepower department, sticking with the 350ci small-block Chevy that was in the car when he bought it. Although it was in great shape mechanically, Casey and Rick pulled the engine when it was time for the car's makeover. This gave them a chance to smooth the firewall and to properly detail the engine. The trusty small-block features a set of Vortec cylinder heads and a Comp Cams Xtreme Energy 262 camshaft, giving it great performance and a nice idle quality. Fuel comes by way of a 650-cfm Holley four-barrel carburetor atop an Edelbrock Performer RPM intake manifold, while electronic ignition lights the fire. Patriot headers and Flowmaster 40-series mufflers provide the soundtrack of Casey's youth. Chapman's Garage is responsible for the custom 2-1/2-inch exhaust system. Casey dressed up the engine with all-black accessories, including finned aluminum valve covers and Olds/Cadillac air cleaner. He upgraded the accessories to an Eddie Motorsports S-Drive Raven series serpentine system, which includes an aluminum water pump, Sanden compact A/C compressor, and Powermaster 170-amp alternator. The cooling system consists of an aluminum radiator and electric fan.

Behind the small-block is a TREMEC five-speed manual transmission that Casey bought locally. The car had a Muncie four-speed in it when he bought it, but he wanted a little less rpm on the highway. The combination of overdrive and the 3.50:1 gear ratio in the original rearend works out nicely. Casey selects the gears with an old-school Hurst shifter that fits perfectly around the bench seat.

Aesthetically, the car is clean and simple and that's exactly how Casey wanted it. When he bought it, the lacquer paint was cracking but the body was in very good shape considering how long it had been together. Tony Tripplett handled the bodywork, stripping away the old paint and going back with modern urethane materials over the original sheetmetal. He straightened the panels and applied Gypsy Red and India Ivory basecoat and followed that with a few coats of clear. He sanded and buffed the materials to a beautiful finish, and then it was time to install all-new 210 stainless trim and smoked glass.

Inside is a mixture of new and old, as Casey retained the Delray seat upholstery and door panels that the previous owner had installed. After a thorough cleaning, the material was in great shape. He did replace the headliner and carpet, giving the interior a fresh look. He also upgraded the dash with Dakota Digital gauges, a Custom Autosound radio, and original-style slider controls for the Vintage Air system. An ididit steering column positions the original steering wheel in a nice spot for comfortable cruising.

After a few years of weekends and evenings, Casey and Rick finished the '55 Chevy Delray and immediately started putting miles on it. Father and son made the trip across the Great Smoky Mountains in fall of 2022 for the final Shades of the Past Hot Rod Roundup. The '55 grabbed the attention of the judges with its sanitary appearance and perfect stance, and the result was a highly coveted Top 25 Award. We're certain there are many more awards in this car's future but for now Casey plans to continue driving the car every chance he gets. Even though his dad's '55 Chevy is still in the family, this car gives him the chance to relive those childhood days and start making new memories every time he slides behind the wheel. **MR**



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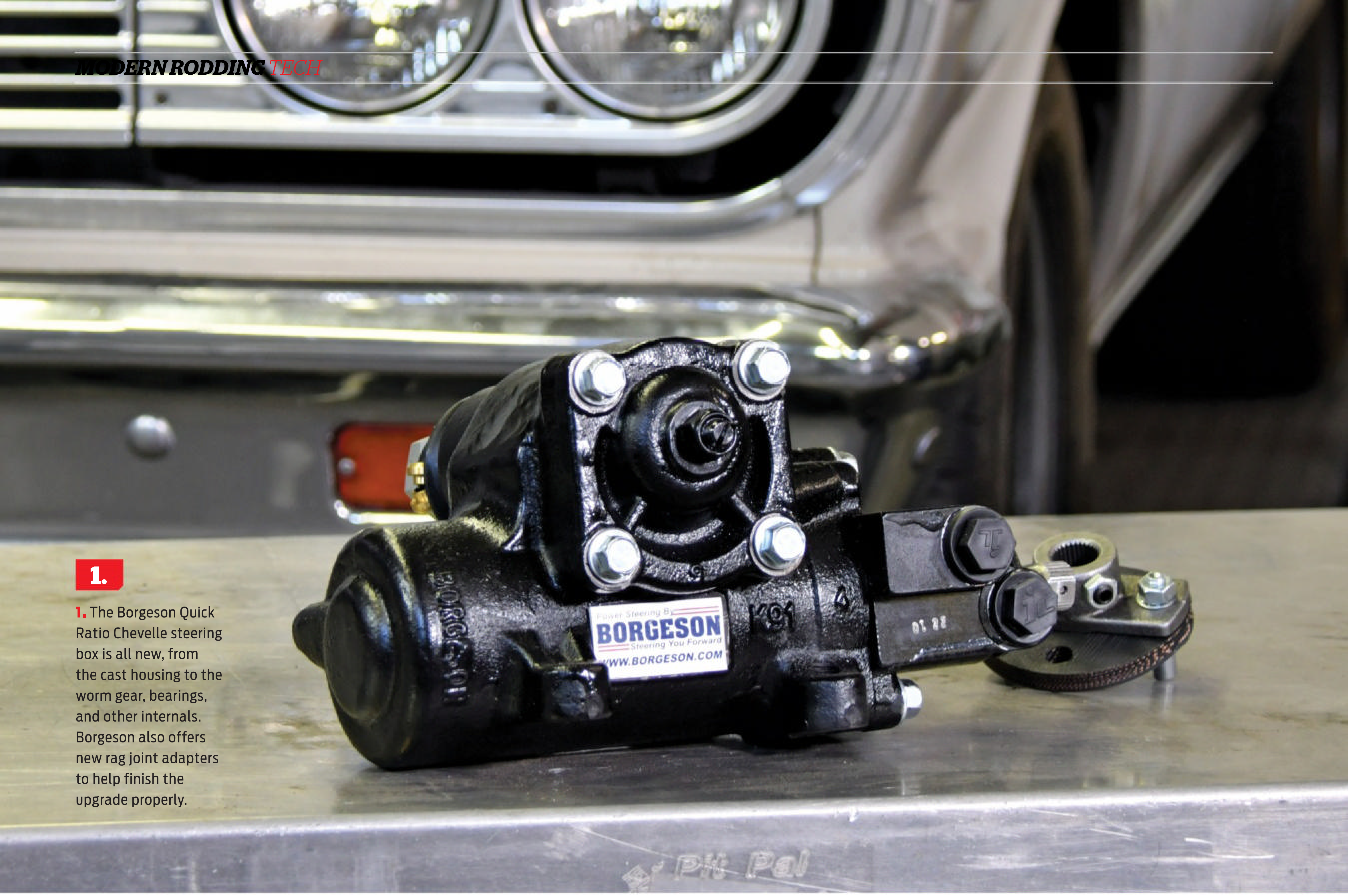

1.

1. The Borgeson Quick Ratio Chevelle steering box is all new, from the cast housing to the worm gear, bearings, and other internals. Borgeson also offers new rag joint adapters to help finish the upgrade properly.

STEER QUICK AND TRUE

Borgeson's Quick Ratio Chevelle Steering Box Upgrade

BY **TODD RYDEN** PHOTOGRAPHY BY **THE AUTHOR**

Many hot rodders tend to prioritize performance and cool looks before ever thinking about things like steering improvements. Making the move from manual steering to power assists is obviously a night and day difference, but you may be surprised to learn that even updating a stock power steering box with a modern unit can make a huge difference in the way your old classic drives.

Our case in point is a '64 Chevelle that still sports the factory power steering. The turning action was easy, almost too easy, and felt unbalanced at highway driving speeds. We recently heard about Borgeson Universal's all-new quick ratio steering box that bolts in place of the factory Saginaw 800 series box used in most '64 and up GM classics.

The new unit has a quicker 12.7:1 turning ratio compared to the stock ratio of 16:1. To determine your steering ratio, simply count the number of turns that the input shaft makes (where the steering shaft connects) compared to one turn of the output shaft. The Borgeson box clicks in at just about three turns lock-to-lock compared to the stock unit at well over four turns. But it's not just about the turning, as the new box also provides a smoother, more controlled action.

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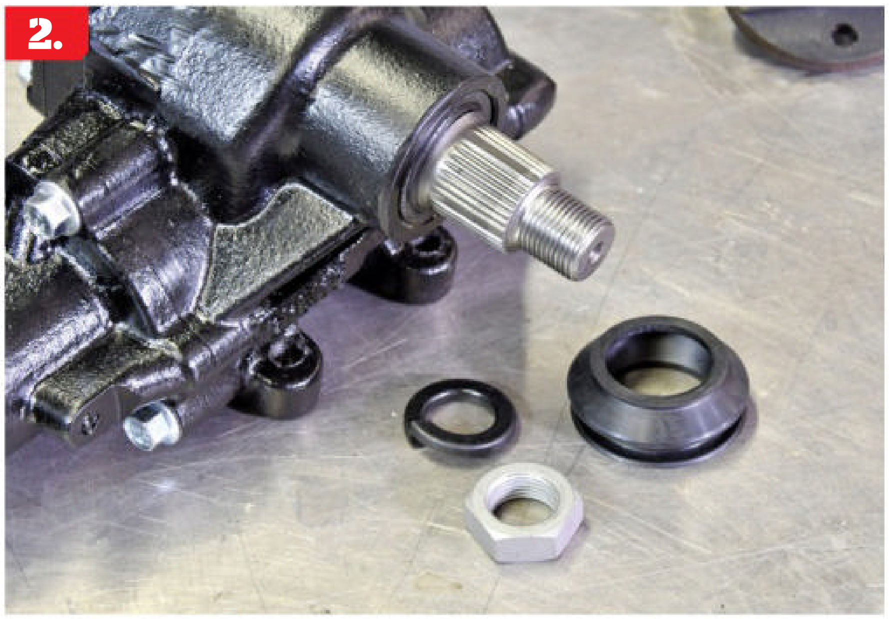

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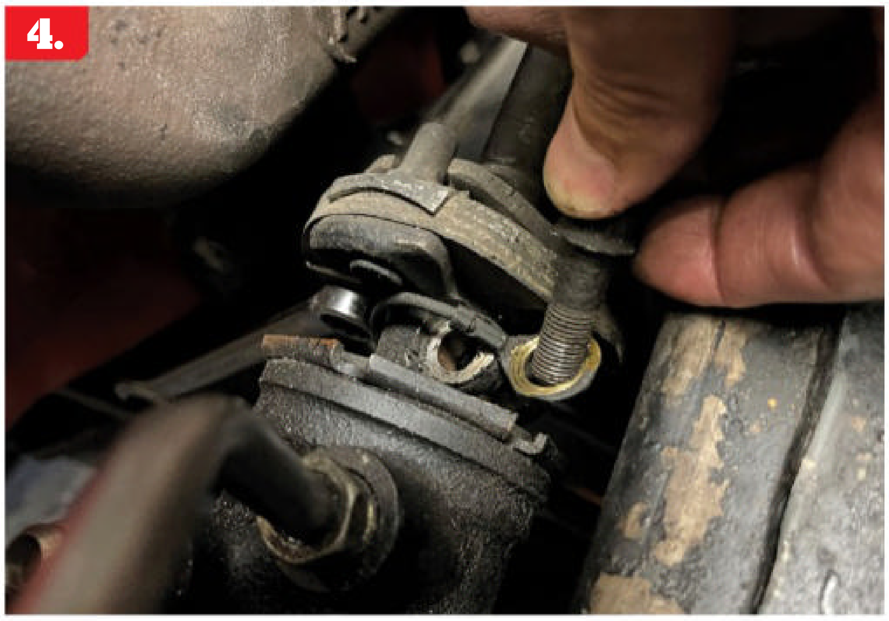

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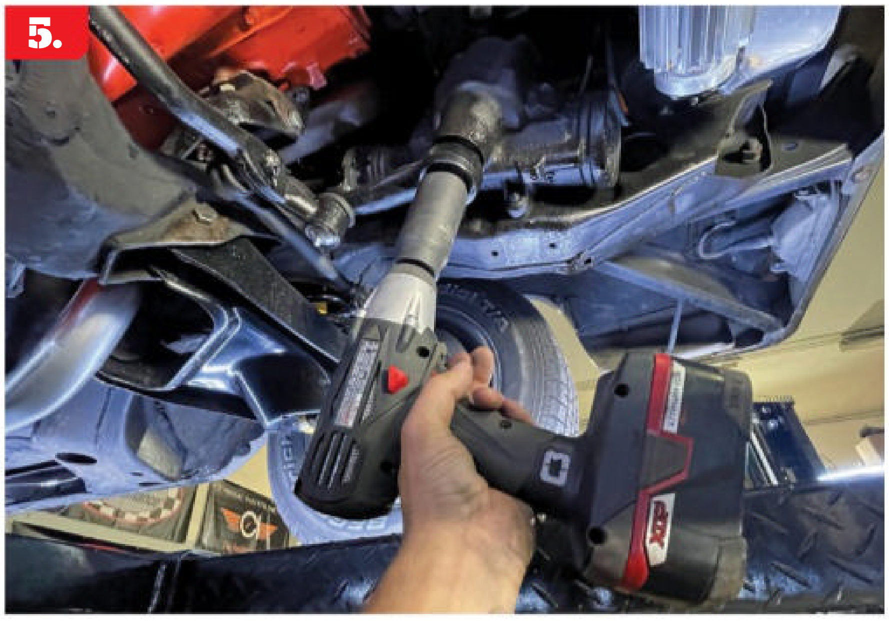

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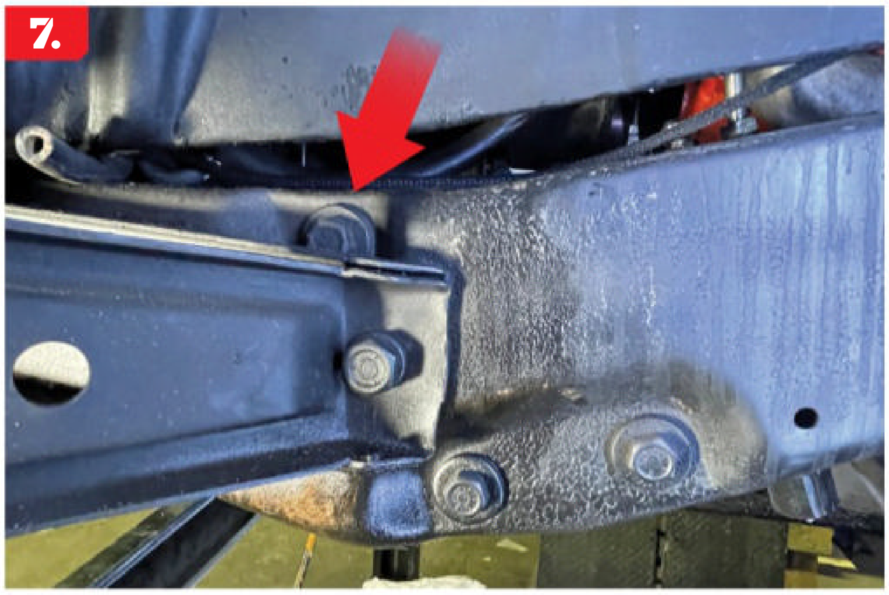

2. A new pitman shaft seal and hardware is supplied, but if you're moving from a manual box to the power-assist Borgeson unit you'll need to order a power steering pitman arm. Note the flat spots on the splined shaft—these are placed 90 degrees apart so the pitman arm can easily be oriented properly.

3-4. Before draining the steering fluid we set about disconnecting the steering shaft from the original rag joint. This consists of two bolts followed by the bolt that clamps the joint to the input shaft of the steering box. Our Chevelle still had the small safety wire assembly on the joint assembly.

5. You're going to need a big socket, 1-5/16-inch (or 33mm), to remove the pitman arm from the steering box. A little help from an impact gun or giant breaker bar will go a long way in getting the nut off the shaft.

6. A pitman arm puller is necessary, which can be borrowed from your nearby big box parts store. Our Chevelle was equipped with power steering from the factory so the same arm can be used, but if you are moving from a manual box you'll need to update to a power-assist pitman arm.

7. Three bolts secure the steering box to the framerail. Two were easy to access but note the location of the top left bolt *(arrow)*—behind the bumper bracket! That was a surprise, and we were forced to remove the bumper bracket. The steering box is a beefy piece so be sure have an extra hand to help with the removal.

8. The new Borgeson steering box is very close to the original power steering unit and even on a restored vehicle would be tough to spot. Before installing the unit, be sure to center the steering shaft by rotating the pitman stop to stop then back to the middle. Also, make sure the steering wheel is centered.

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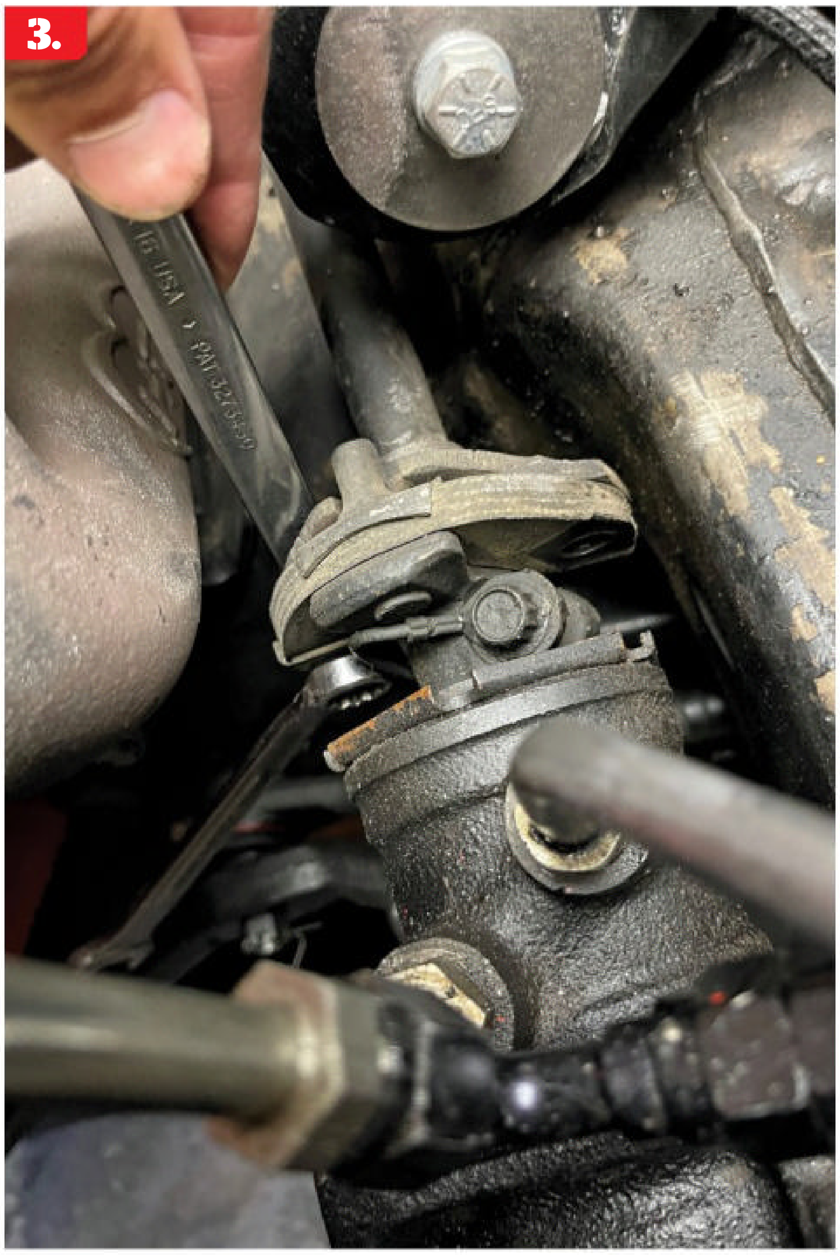

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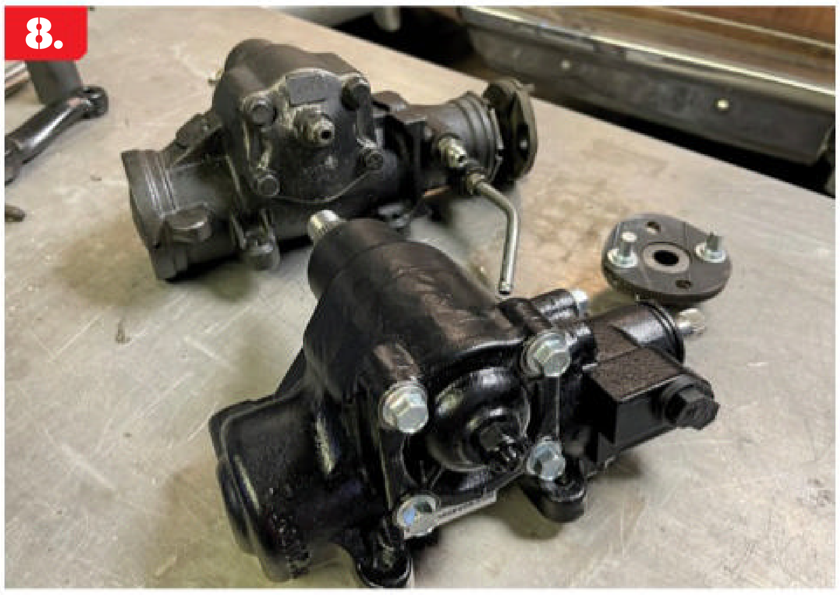

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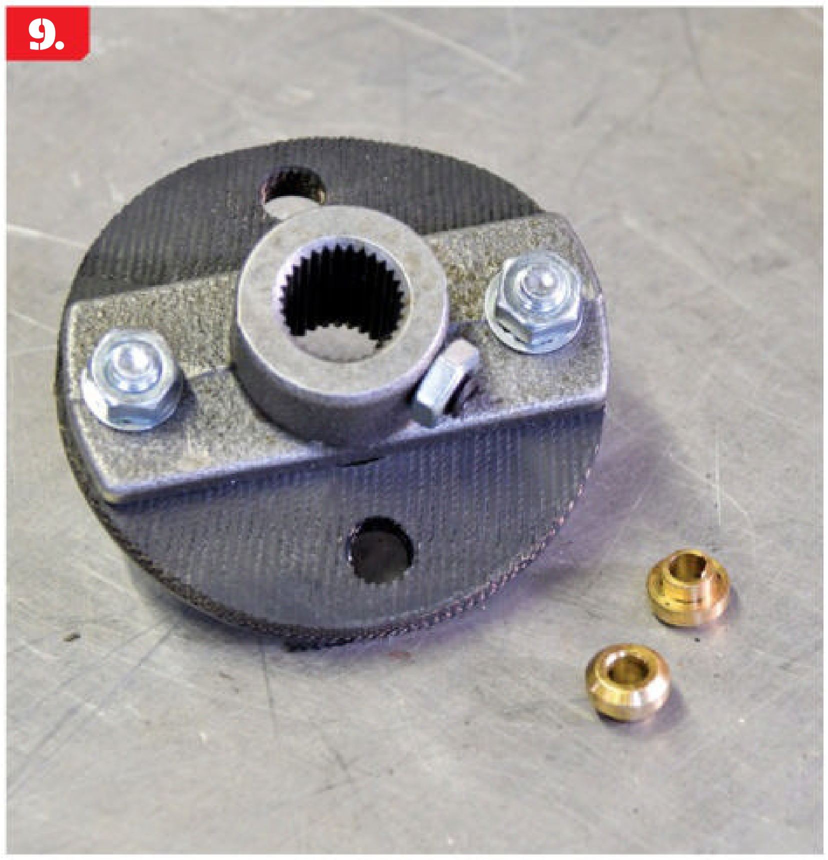

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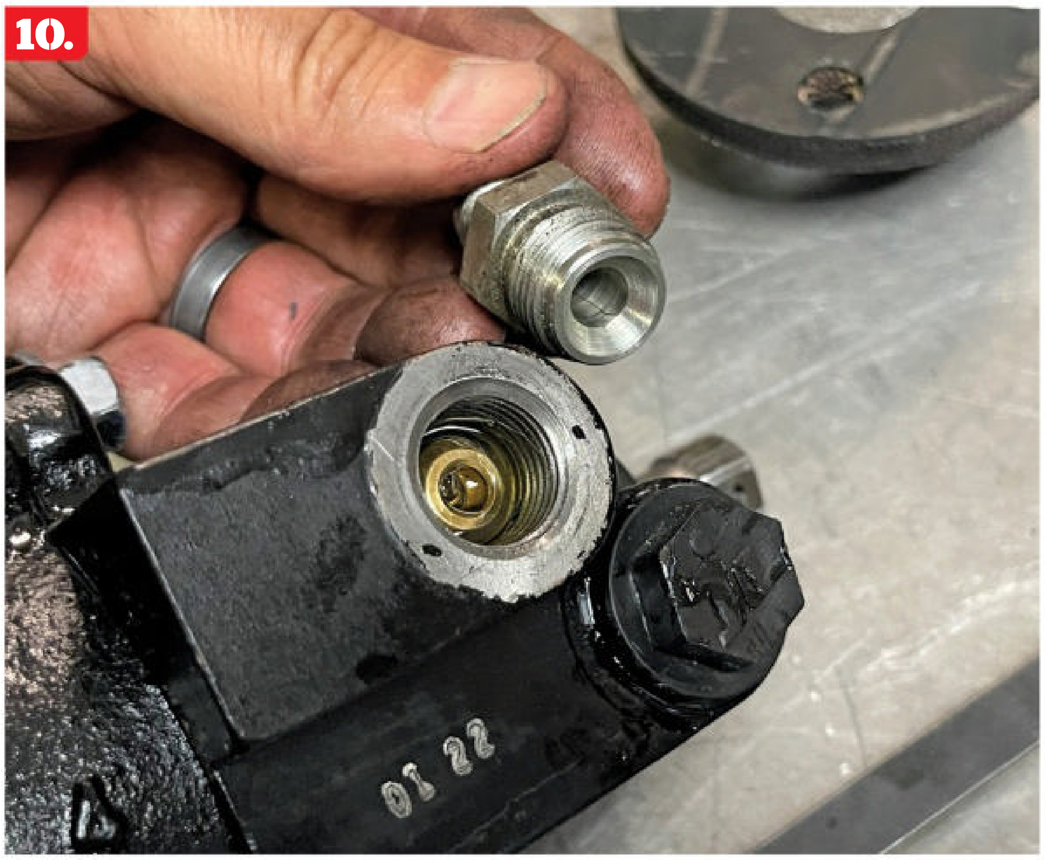
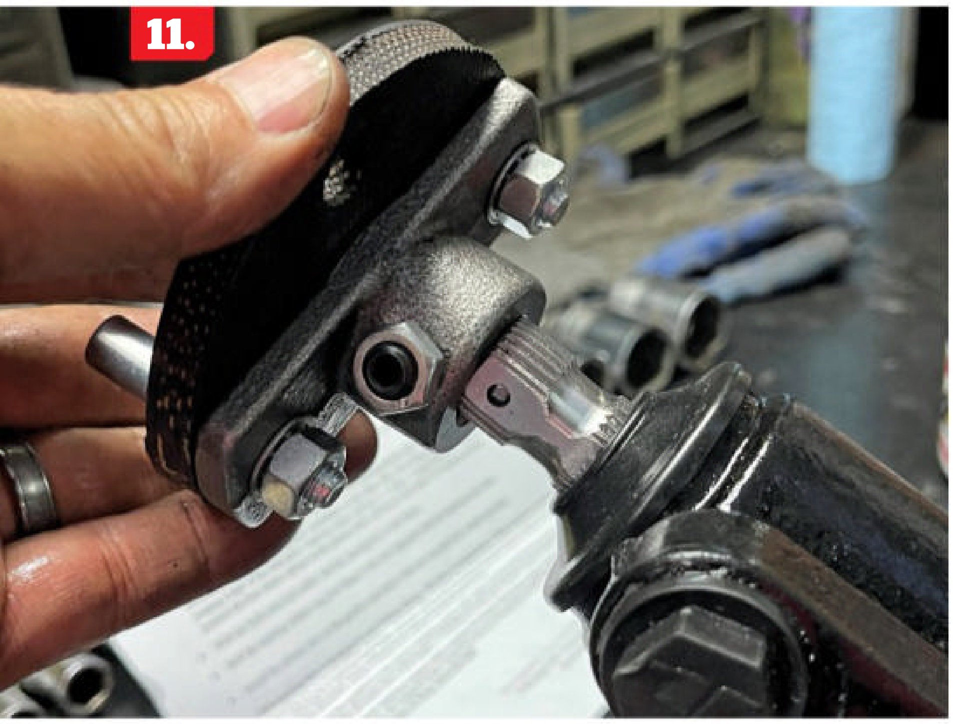


9-10. Borgeson supplied a new rag joint that connects the new splined input shaft to the original steering column shaft. To adapt the original inverted flare fittings a pair of brass ferrules are supplied that simply press right into place in each hose connection. (If you're moving from manual to power, Borgeson also offers a line kit; PN 925103.)

11.



11. Install the new half rag joint connector to the input shaft before installing the box. Confirm the joint connector is fully engaged to the shaft and tighten the setscrew and lock nut.

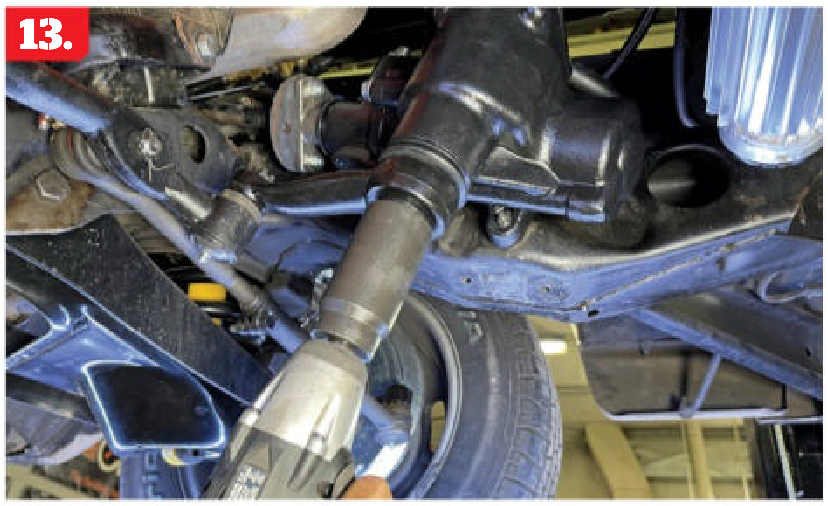
12.

12. With the new box mounted securely using the original hardware we installed the new bolts to connect the steering shaft to the new rag joint.

13. A fresh lock washer and nut for the pitman are supplied along with a new seal that you don't want to forget before installing the arm. The nut gets torqued to 125 lb-ft so we got it started with the electric impact.

14. Depending on your application and vehicle goal you may want to consider an accessory cooler for the steering fluid. Today's giant, grippy, pro-touring-style tires or routine autocross action can cause fluid to overheat, resulting in erratic power assist and pump issues. Borgeson offers several fluid coolers that will help keep the fluid within operating specs during high-pressure driving.

13.



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15.

RED LINE
POWER STEERING FLUID
1 U.S. Quart - 946 ml

15. With everything connected, we filled the reservoir with Red Line's synthetic power steering fluid. When filled, lift the front tires off the ground to ease the steering effort to bleed the system of air. With the engine running, gently turn the wheels a few times stop to stop. Shut off the engine and top off the fluid to the right level.

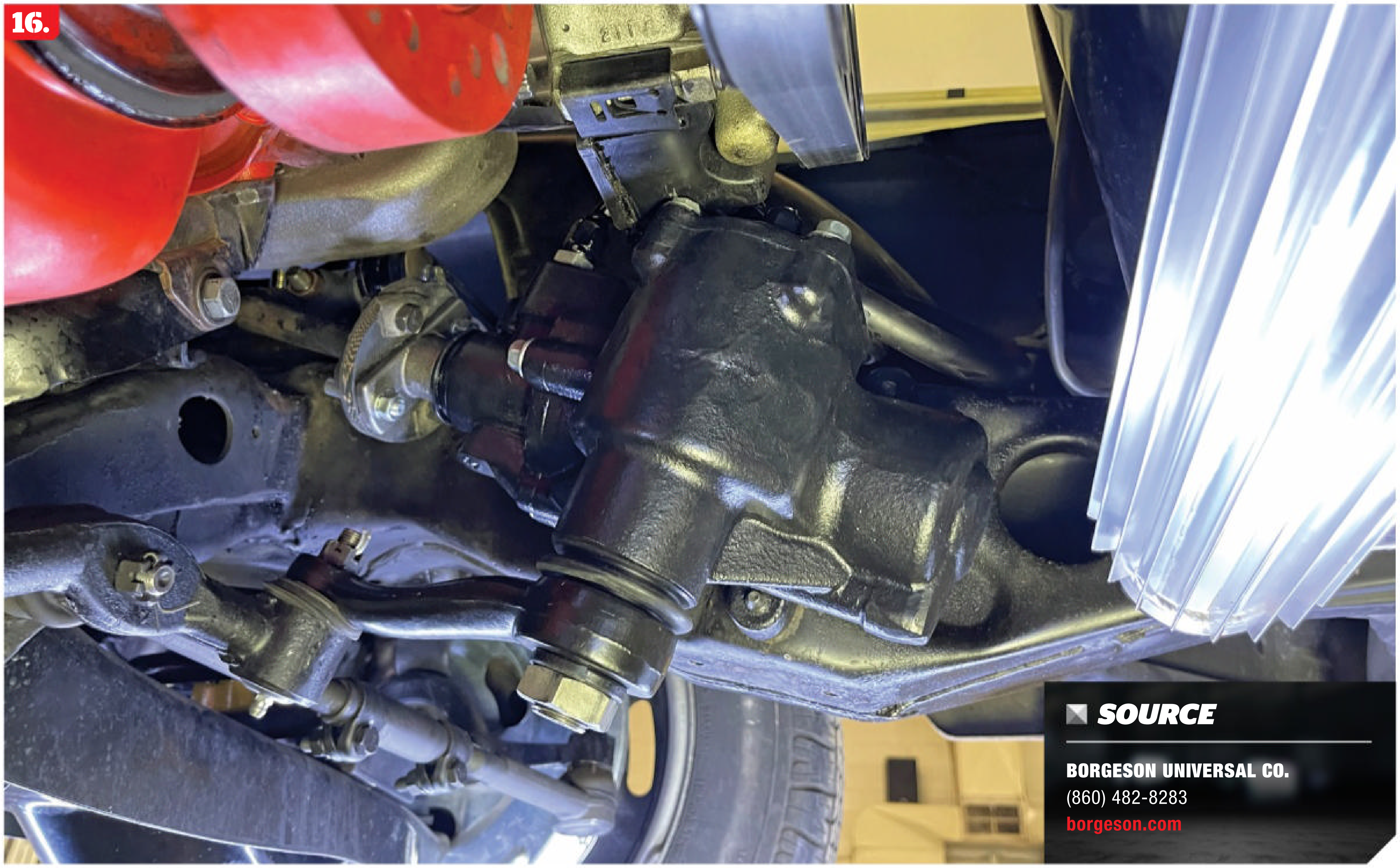
16. The Borgeson box is a direct-fit modification that seriously improves the steering feel and driving experience of your Chevelle.

As far as accessories, you'll need to update the original shaft coupler to a rag joint adapter to fit the 3/4-inch 30-spline input shaft of the new box. Don't worry about searching for one as Borgeson offers this rag joint (PN 990012). Also note that the new box uses later-model, O-ring-style fittings rather than the inverted flares used on '60s and mid-'70s Chevys. Borgeson takes care of this by supplying two handy little brass ferrules that adapt your original lines to the new box. Lastly, if you're moving from a manual steering box to power assist you'll need to source a factory-style power steering pitman arm.

The Borgeson box bolts right in place of the original with the lines in the exact same spot (the larger port is the high-pressure side and is located closer to the engine). In fact, the installation can easily be handled with hand tools, except the need of a pitman arm pulling tool that can be rented at most parts stores. While you're there, make sure you have a socket large enough to remove the pitman arm nut or you'll be making two trips to the store.

Not only did the new Borgeson box speed up the turning ratio, but it really changed the overall driving experience. The original one-finger steering was a little twitchy on the highway but now it feels much more secure and positive on the road. We expected quicker turning action but not the overall, tighter, improved driving feel that the Borgeson box delivered. Next, we need to go find a smooth, winding road! **MR**

16.



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Larry Woods, Designer of Hot Wheels Cars, Hot Rodder, and Now Inductee to the Automotive Hall of Fame

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Hot Wheels Racing

BY **BRIAN BRENNAN** ◣ PHOTOGRAPHY COURTESY OF **LARRY R. WOOD**

It will be this summer on July 20th when longtime hot rodder and well-known designer of Hot Wheels for Mattel Larry R. Wood will be inducted into the Automotive Hall of Fame (AHF). The AHF itself is in Dearborn, Michigan, and is open to the public.

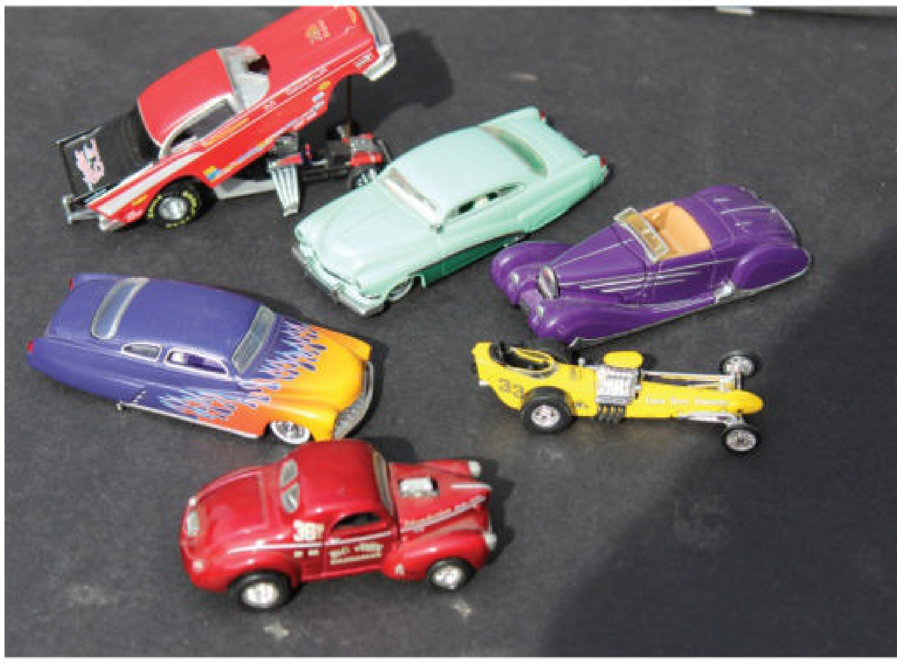
To those of us who have spent our lives building, driving, and thoroughly enjoying hot rods, Wood is one of us. He is a member of the Early Times Street Rod Club and is a constant sight in the Long Beach, California, area. His builds have graced the cover of many car magazines over the years. I'm also willing to bet there isn't a hot rodder alive who hasn't picked up a Hot Wheels car at one time or another.

When Wood graduated from Art Center College he moved to Detroit and spent two years designing for Ford Motor Company. In 1968 Wood moved back to SoCal and then in 1969 he was hired by Mattel where he spent a career as the chief designer and innovator of Hot Wheels cars.

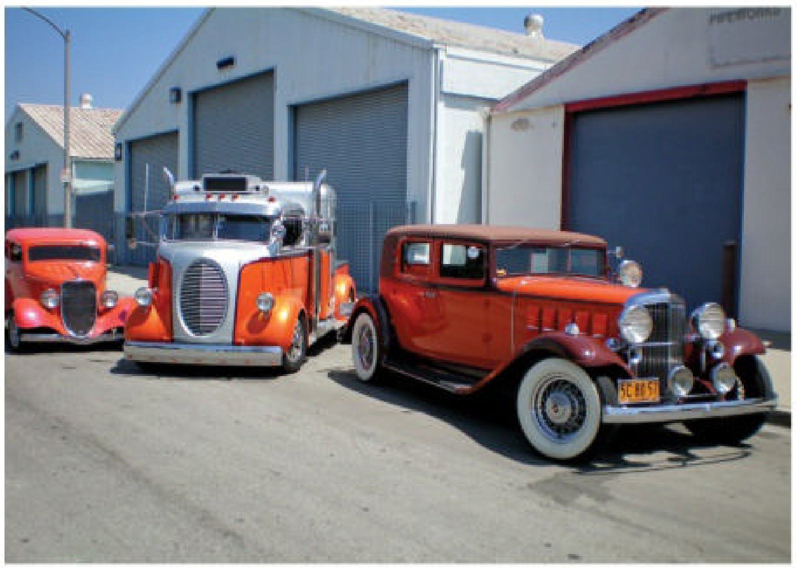
Having literally designed thousands of Hot Wheels, you will find among them some very famous builds. The Hirohata '49 Merc, the Boyd Coddington collector set, Ramblin' Wrecker (which originally featured Wood's home phone number on the rear quarter-panel of the truck), the Bone Shaker, Purple Passion, and many more.

Having retired some 10-plus years ago from Mattel he now spends his days (and nights) working in his shop, which is located around the corner from longtime friend and hot rodder Richard Graves. **MR**

◀ Larry Wood at his personal shop where he builds his hot rods and is very proud of his Hot Wheels collection that spans 50 years.

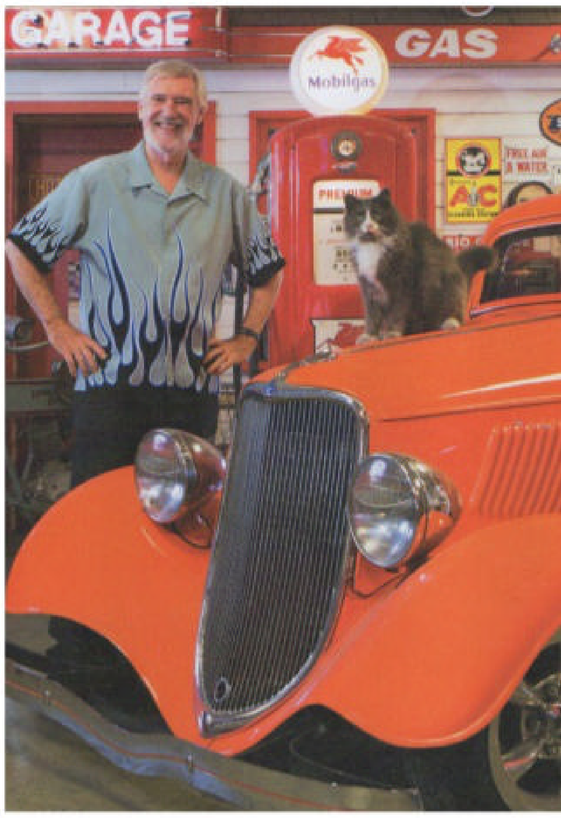


▶ The Hot Wheels collection of famous cars includes the like of the Hirohata Merc, Greer, Black, Prudhomme AA/F front-engine dragster, Big John Mazmanian Willys blown Hemi gasser, and the Tom McEwen AA/FC Funny Car.

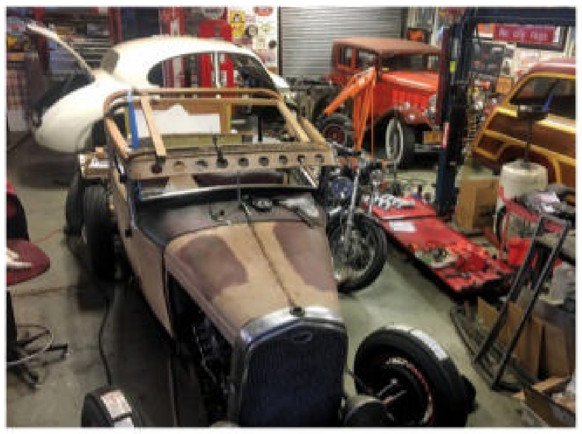


▶ Wood still has in his collection of hot rods his '33 Ford sedan, '32 Nash four-door sedan, and his '51 Ford Woodie (not pictured). The '38 Ford cabover was sold a while back, but it sure did grab attention.

▶ Wood with his '33 Ford sedan and Fluffy the guard cat. Larry has a clowder of cats that take care of the shop during off hours.



▼ Should you wander through his shop today you might just see a '30 Sports Coupe that sports a Miata four-banger with sidedraft Weber carburetion or a Jaguar MK 7 with an LS V-8. On this day we also found his '51 Woodie on the lift and the '32 Nash stuffed into the shop.



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